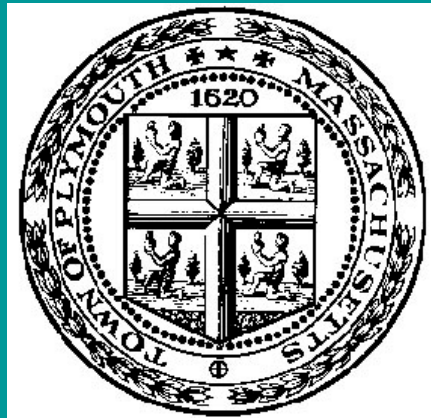


2006 Massachusetts Smart Growth Conference

Town of Plymouth

Local Planning:

Growth Management Tools and Water Resources



Valerie Massard

Senior Town Planner, Plymouth, MA

Growth Management Tools and Water Resources

- Challenges Plymouth faces with respect to growth
- Local Zoning Bylaws that have helped to shape that growth and change the growth pattern over time
- Working through barriers and obstacles in the process

Challenges Plymouth faces with respect to growth and water resources

Size – 103 sq. miles



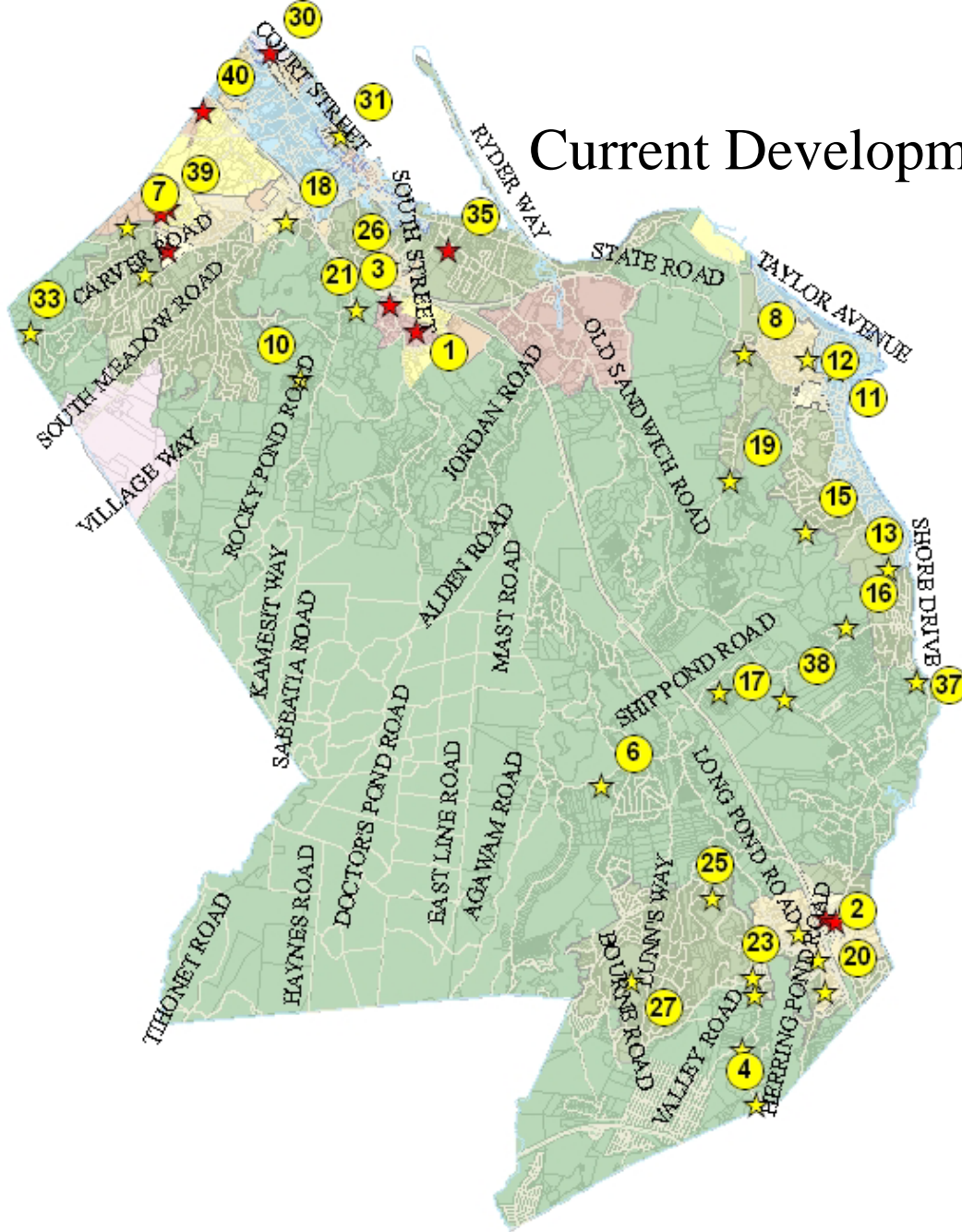
Outline of
Plymouth

Plymouth Continues to Change

- Remains one of the fastest growing communities in the Commonwealth.
- Unprecedented commercial development.
- Significant increases in property values.



Current Development



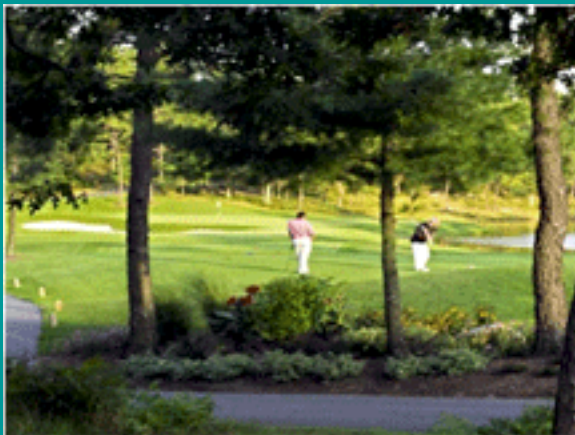
Residential Development

Pinehills

- \$1.5 Billion Project Cost
- 600 Jobs Created
- Taxes
\$2.3 Million 2005
\$17 Million+ at Buildout



Best Master Planned Community
in the Nation 2003

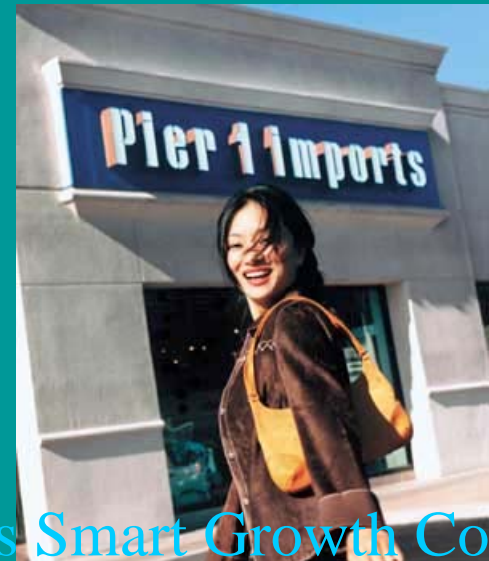


2006 Massachusetts Smart Growth Conference

Commercial Development

New England Development

- 450,000 SF retail
- 800 Jobs Created
- \$35,000,000 Project Cost
- \$700,000 Projected Revenue

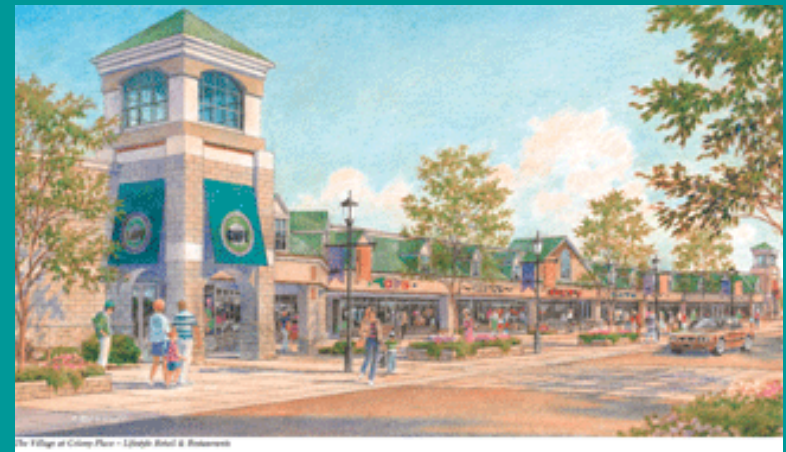


2006 Massachusetts Smart Growth Conference

Commercial Development

Colony Place

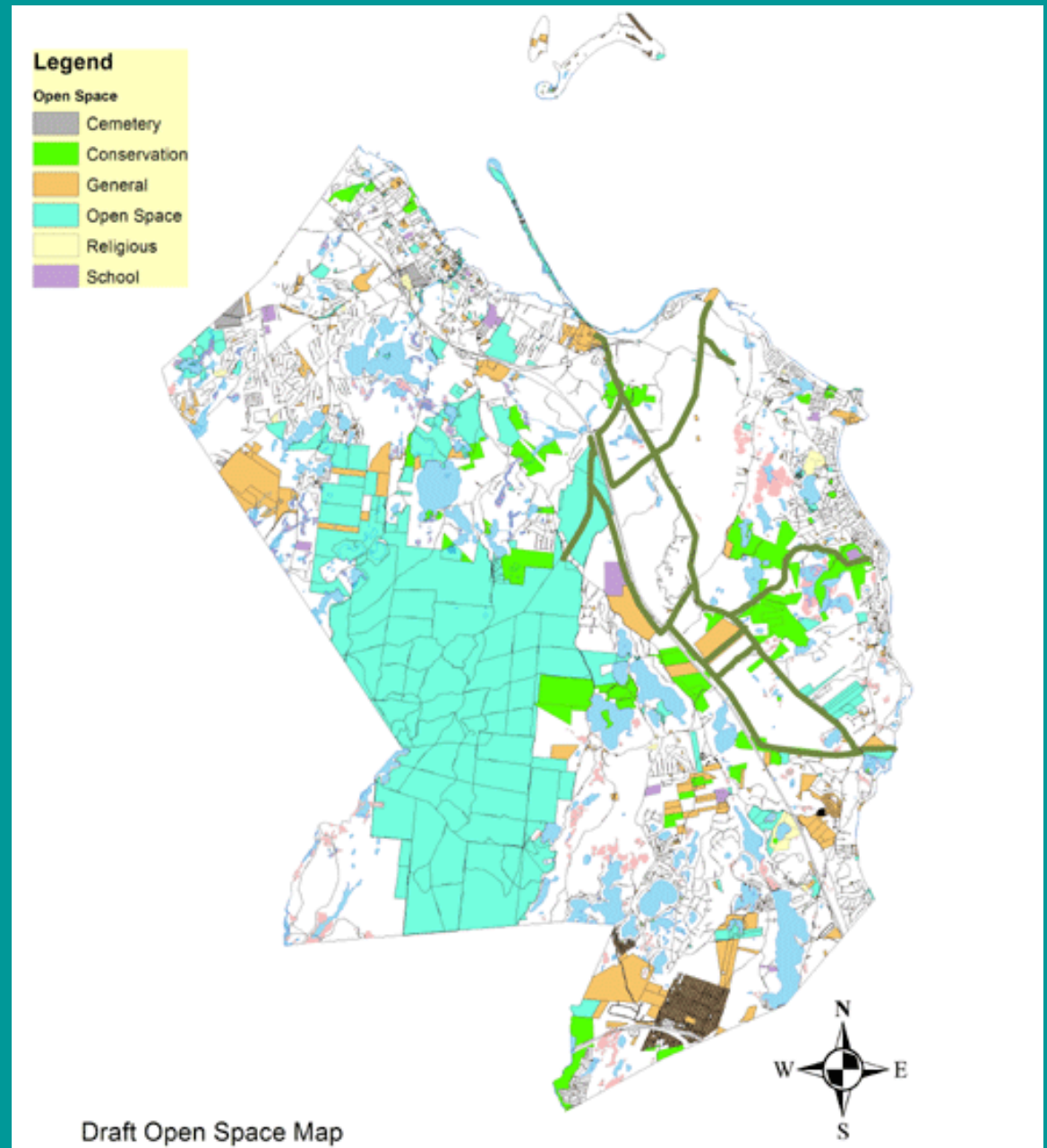
- 850,000 SF retail
- 850 Jobs will be Created
- \$1.4 Million Projected Taxes
- \$100 Million Project Cost



Plymouth also has:

- Large number of rare/endangered species.
- Significant natural habitat for these species.
- Largest sole-source aquifer.
- 27 miles of coastline.
- 365 groundwater-fed ponds.
- Globally rare pine barrens.

Open Space

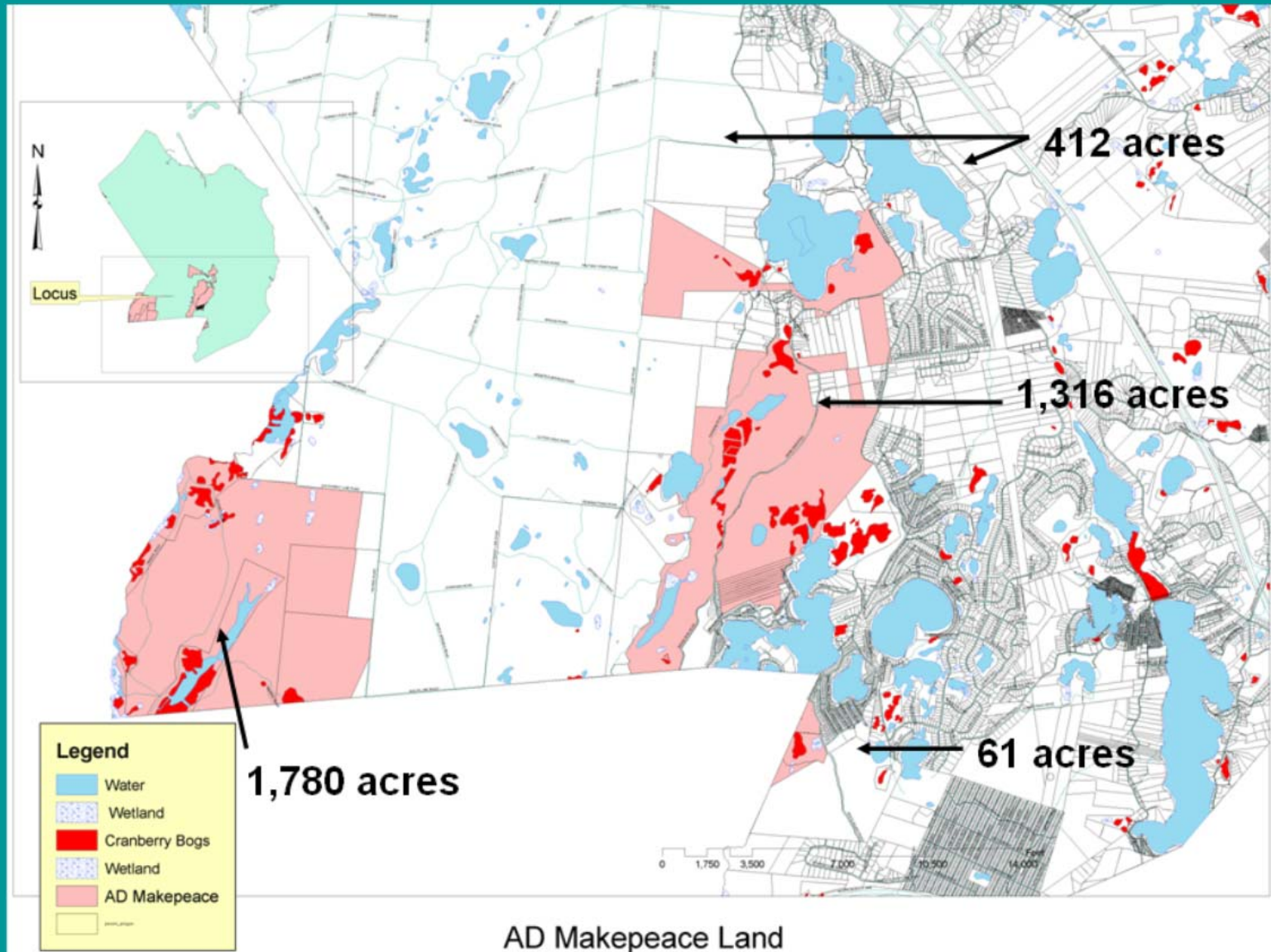


Defining Community Character



Plymouth has cranberry bogs.

Cranberries



And a New WWTP

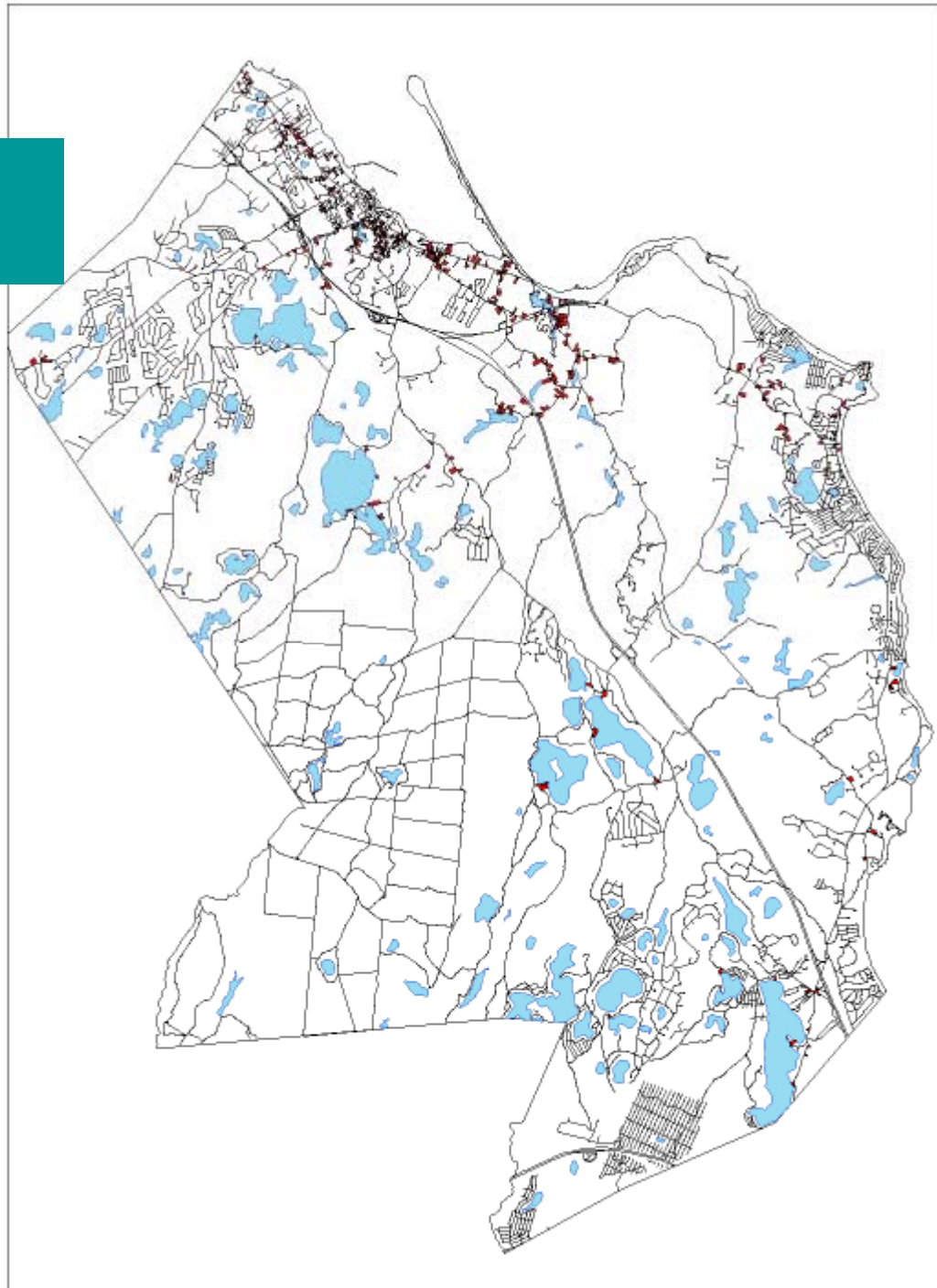
- Unique permit allows discharge into groundwater through leaching fields
- Requires non-point source regulation and reduction in the Eel River Watershed
- Nutrient Management Plan
- Full-time staff, water quality monitoring

Daily Decisions Add Up

Let's see what that means...

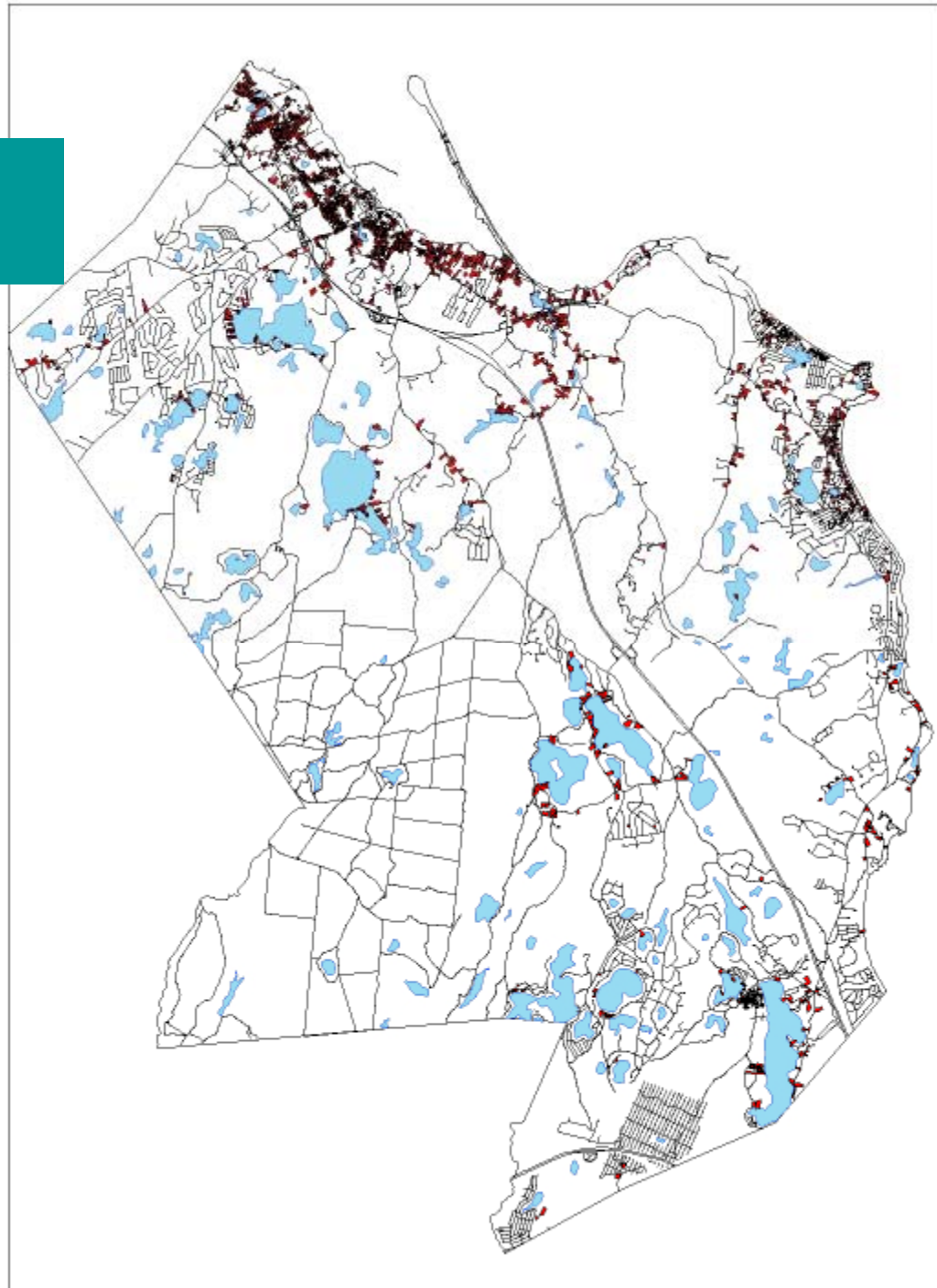
Residential Units

Before 1900



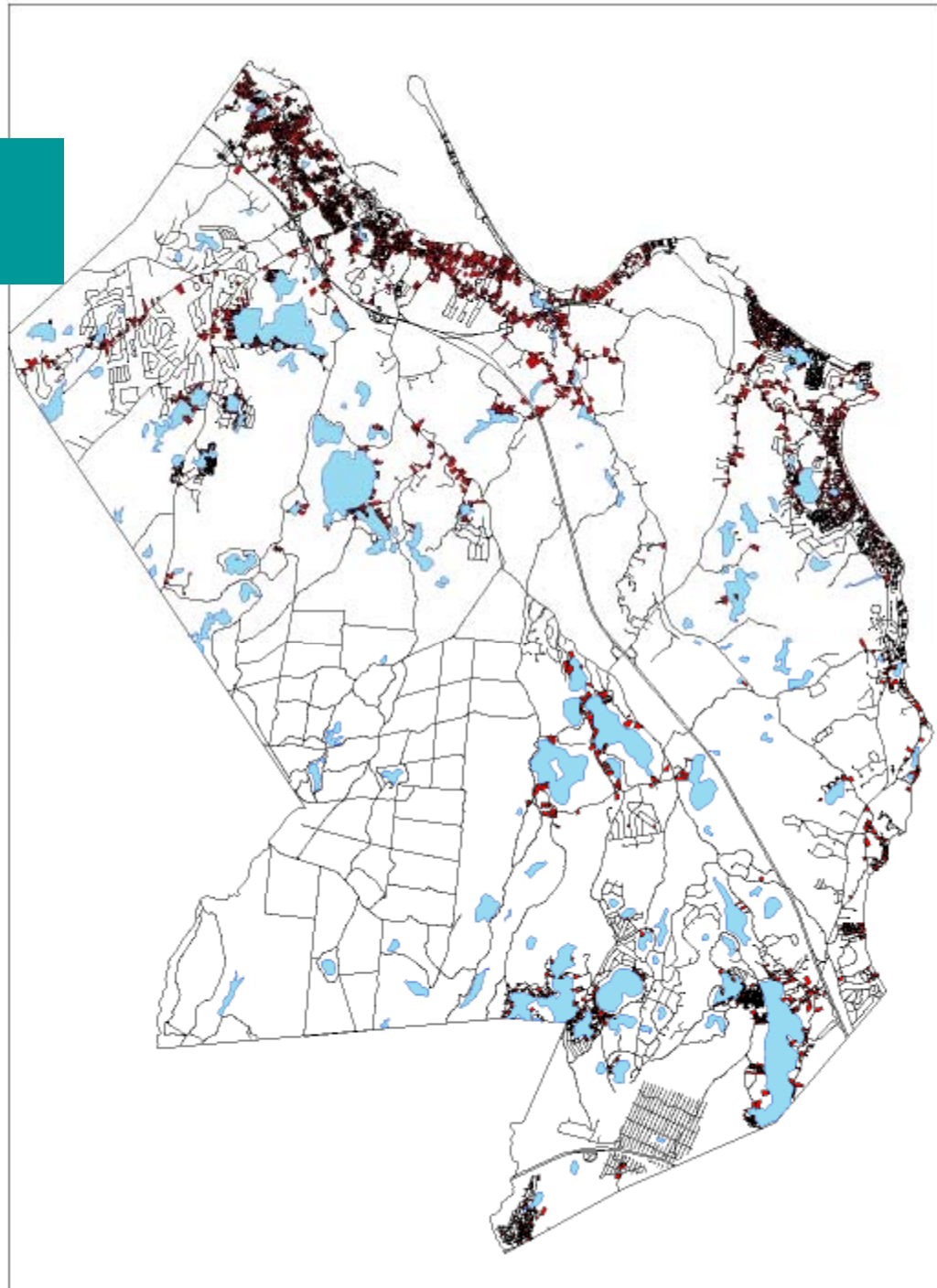
Residential Units

Before 1940



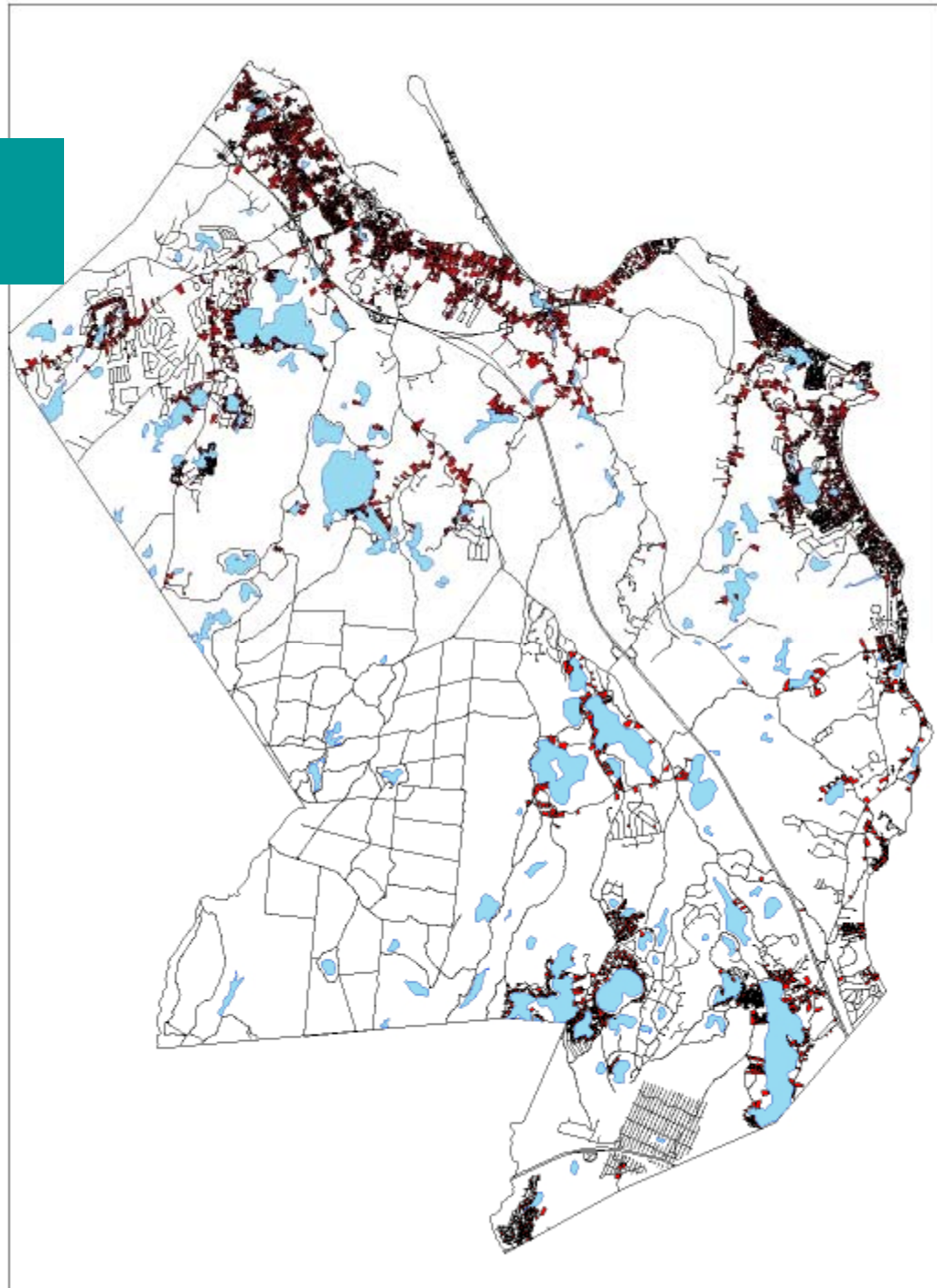
Residential Units

Before 1960



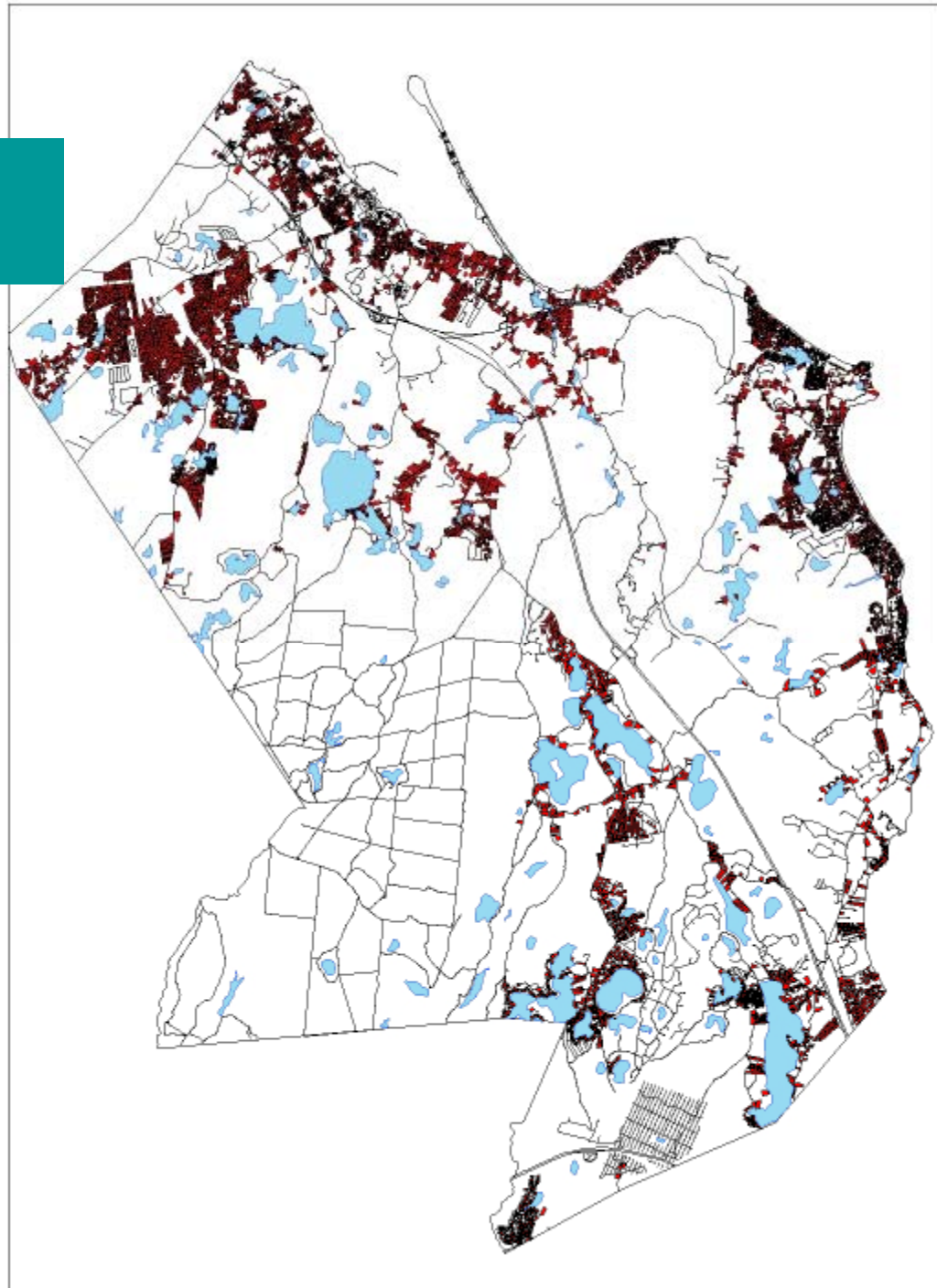
Residential Units

Before 1970



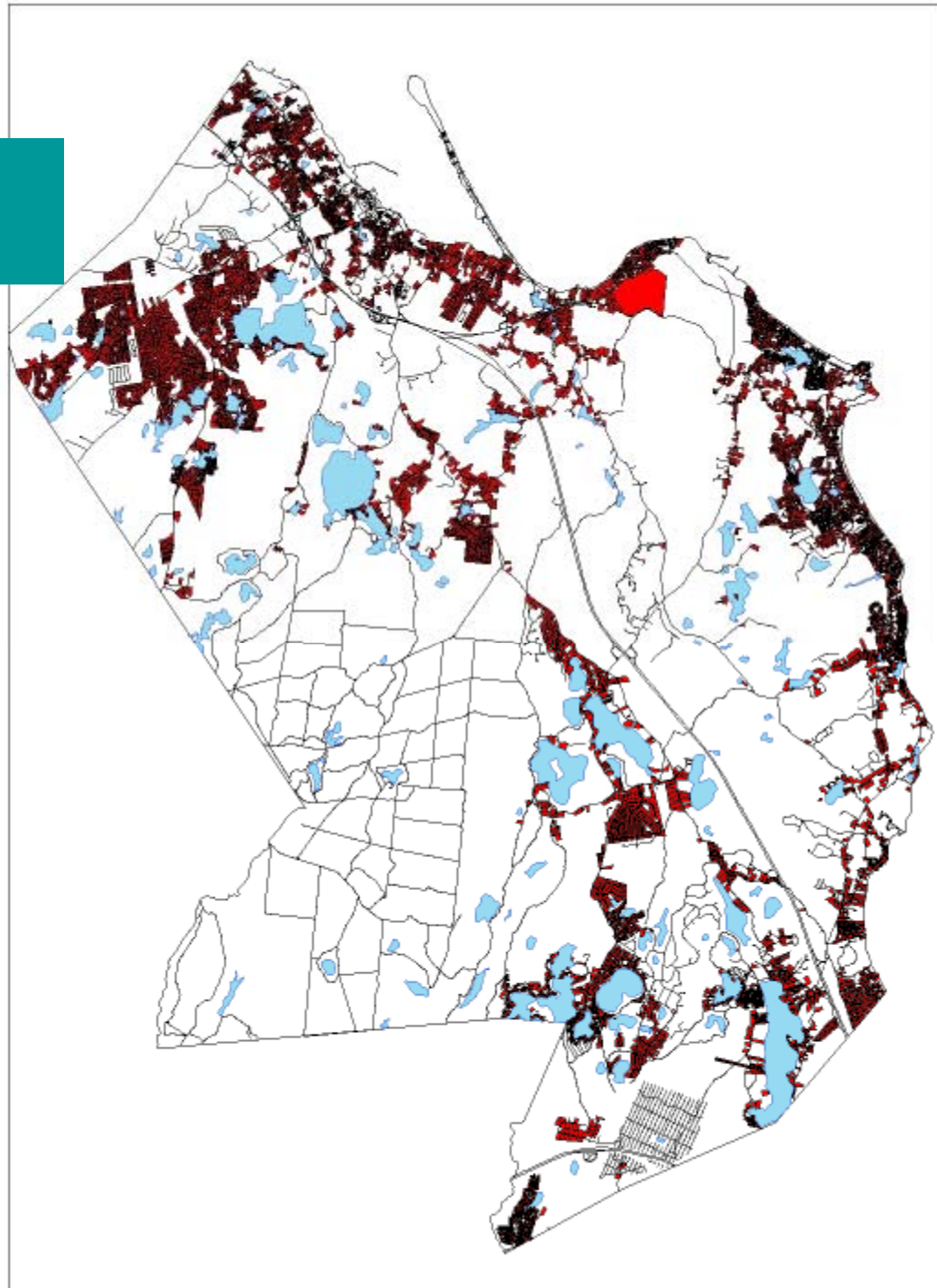
Residential Units

Before 1980



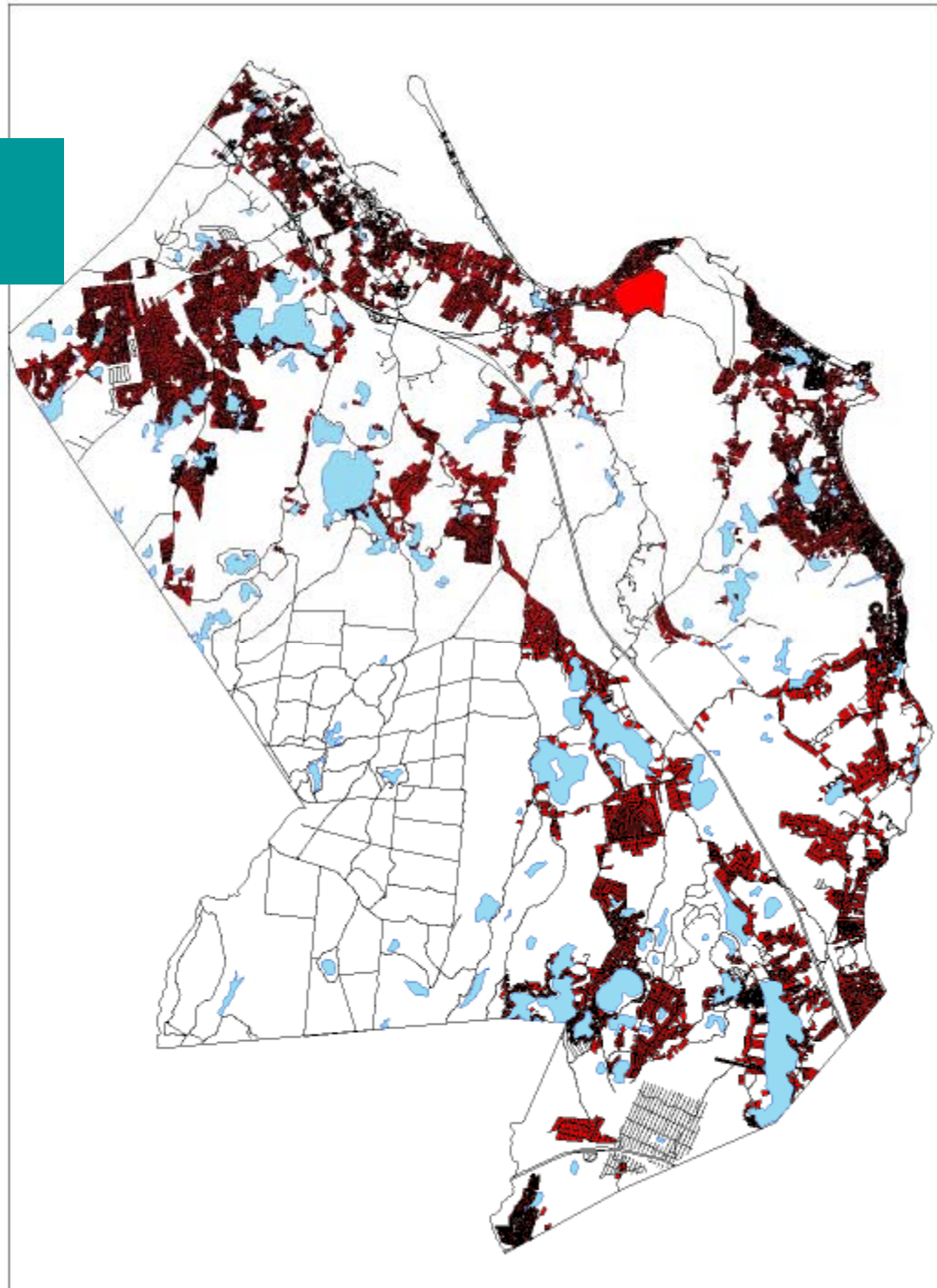
Residential Units

Before 1990



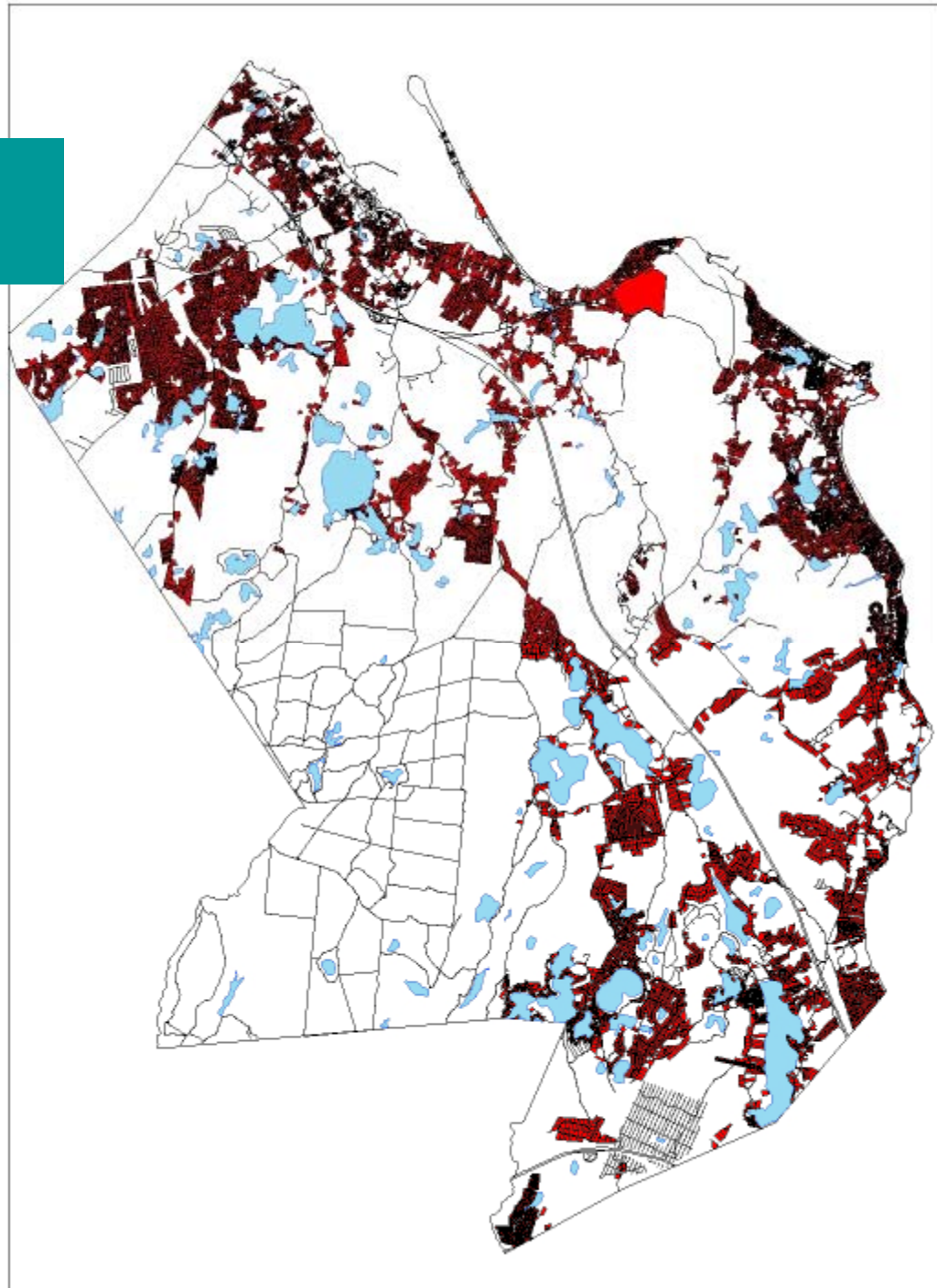
Residential Units

Before 2000



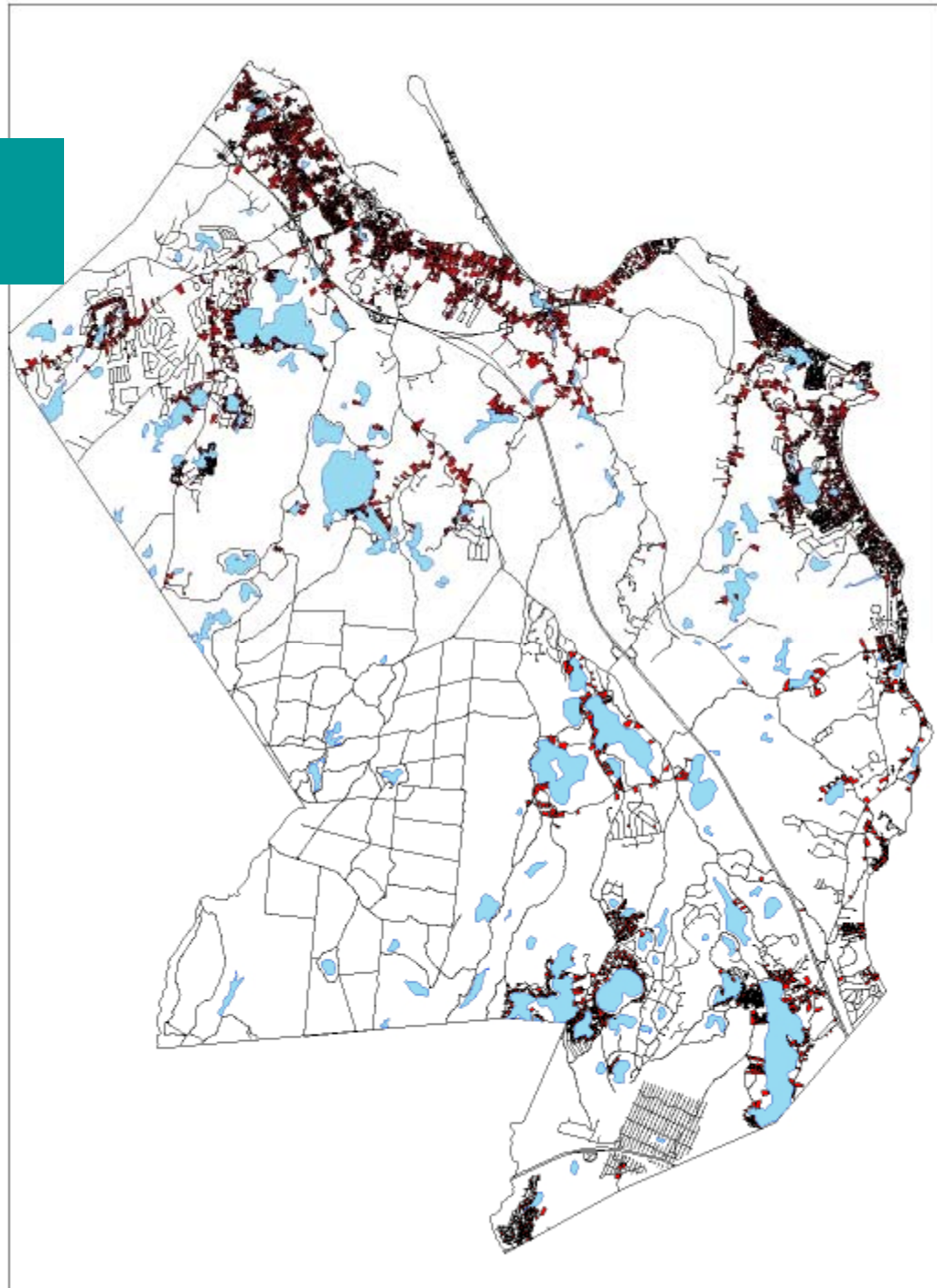
Residential Units

Present



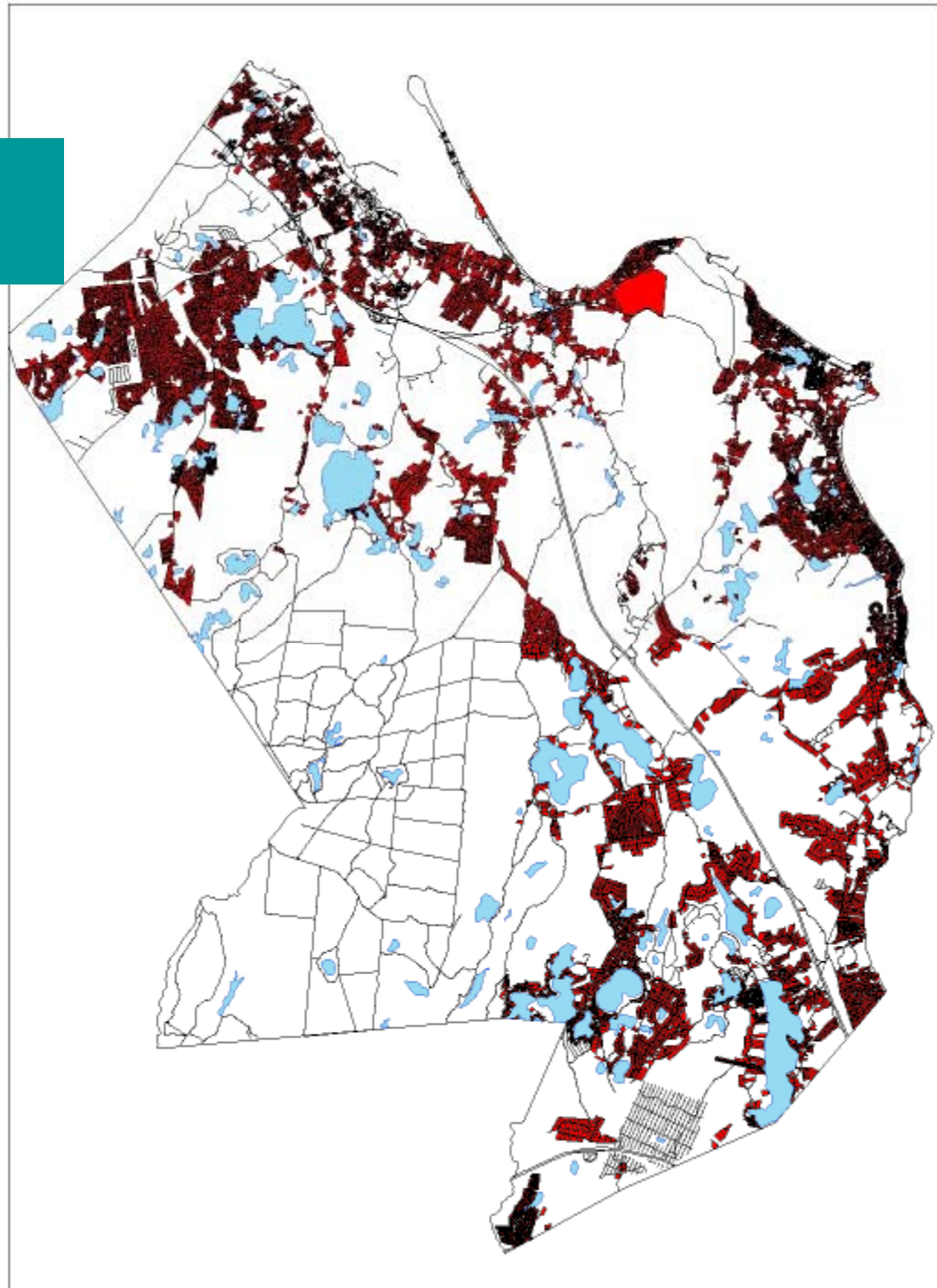
Residential Units

Before 1970



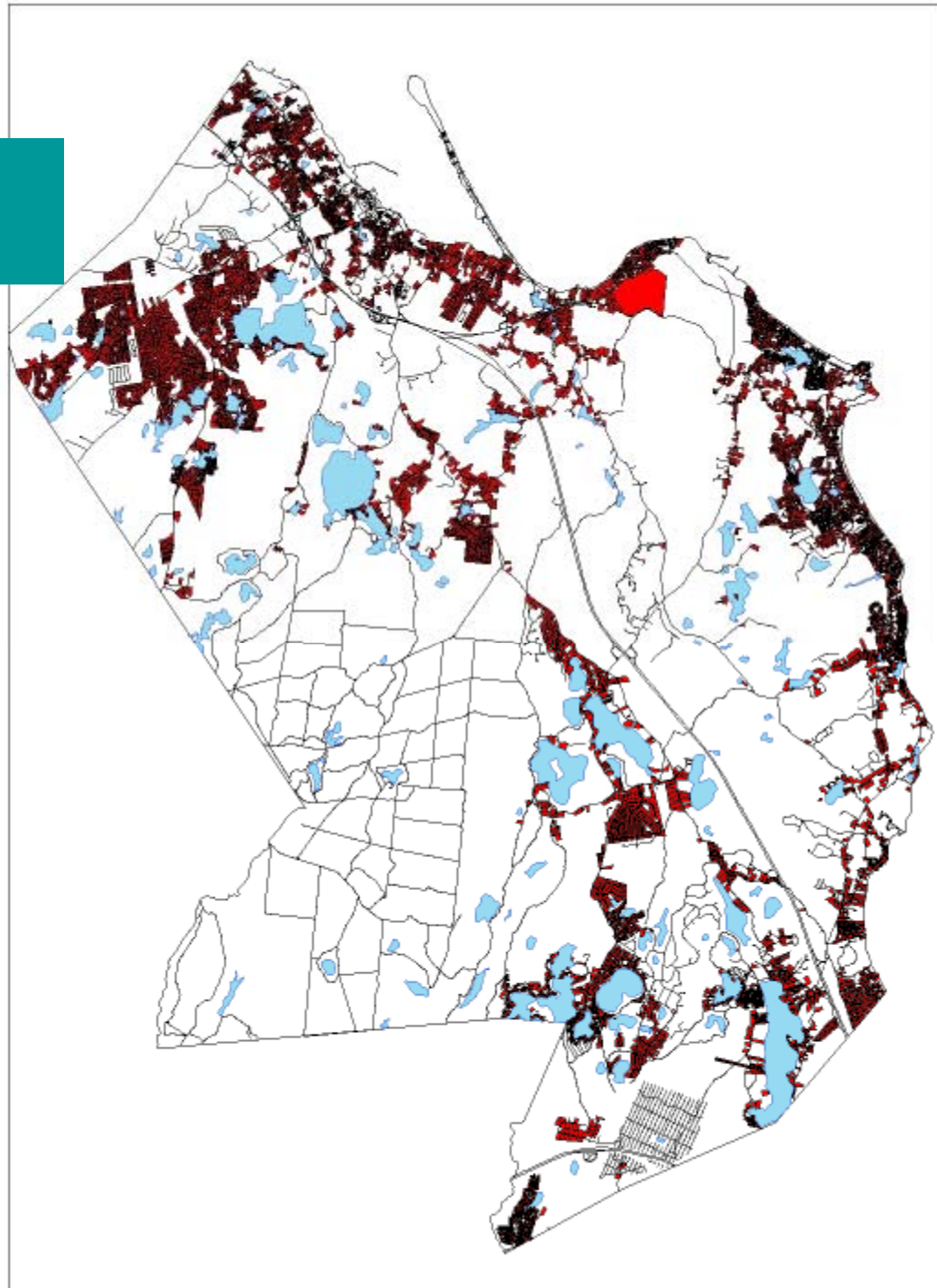
Residential Units

Present



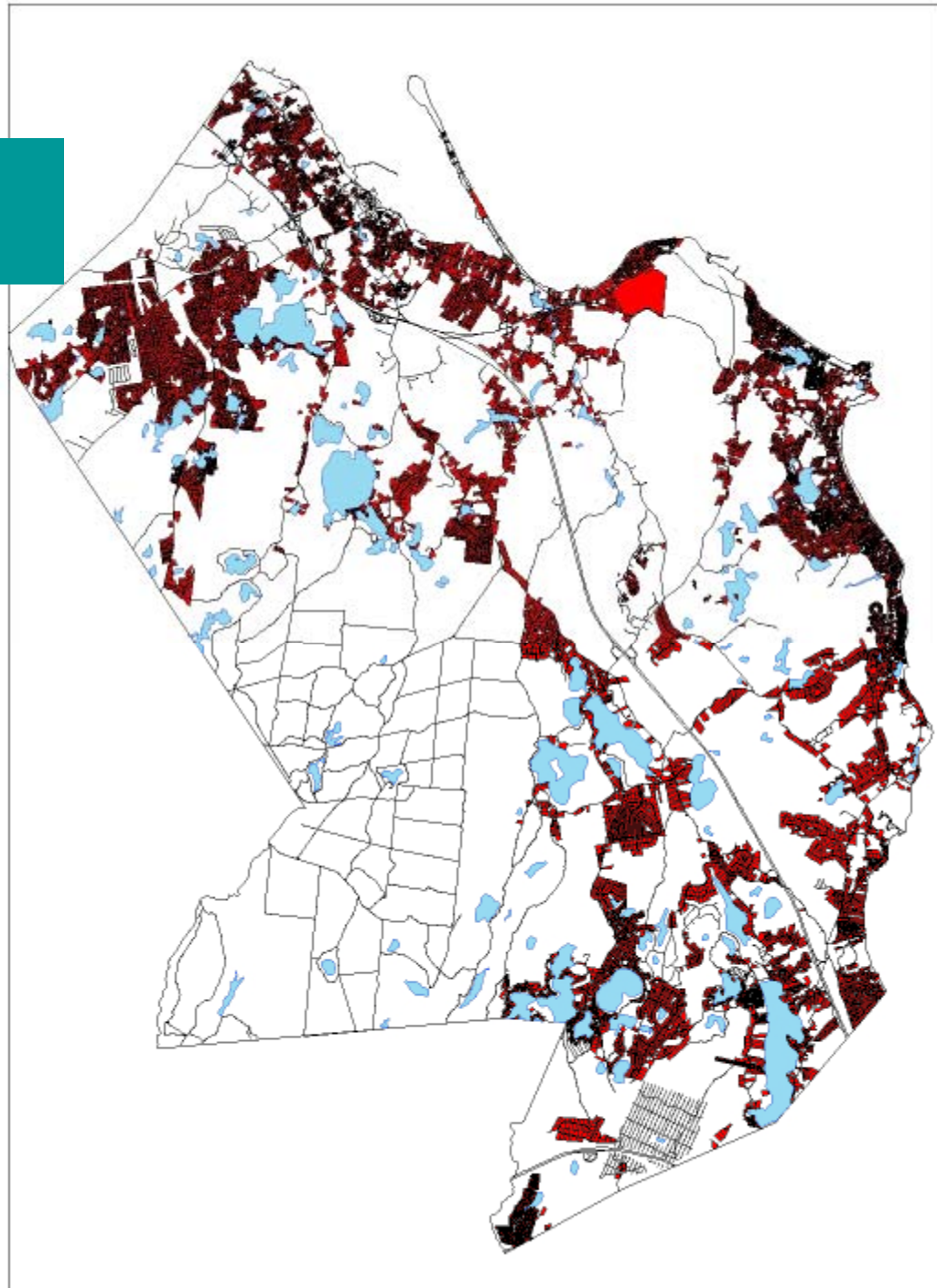
Residential Units

Before 1990



Residential Units

Present



Local Zoning Bylaws that have helped to shape that growth and change the growth pattern over time.

Master Planning

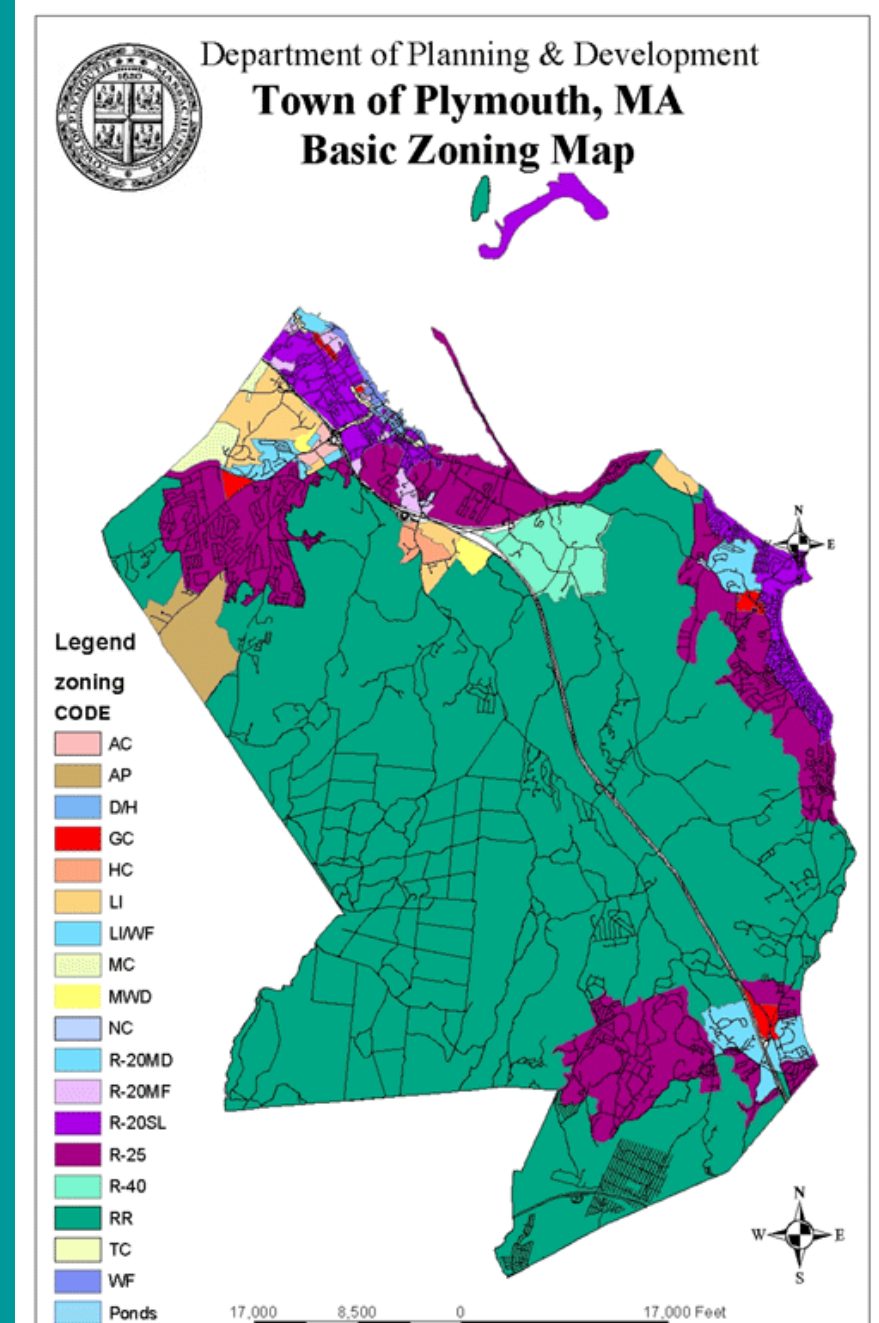
- 1980 Village Center Plan
- 5 Village Centers
- Direct Growth to Centers
- Public Infrastructure Investment
- Discourage Growth Outside Villages

Plymouth's Economic Development and Cost of Community Services Study

(by RKG Associates
funded through EOEA Challenge Grant)

- 56% of all of Plymouth's municipal costs are associated with single family homes.
- Residential development on larger lots have a average negative fiscal impact of \$4,200 for each unit constructed.
- Goals to reduce infrastructure/services to support through creative zoning controls.

88% of the undeveloped
land
is located in the
Rural Residential District.



Plymouth Zoning

Growth Controls
many adopted 1996

- Impact Fee Legislation Filed
- Open Space Bylaws (VOSD, RDD, RD)
- 3 Acre RR Density (1981, outside village centers)
- TDR
- Development Phasing
- Building Cap

Plymouth Zoning

Growth Controls

- Adopted incrementally after looking issues.
- Not perfect in the beginning, start with basics.
- Evaluate and amend with use.
- Allow flexibility with standards – economic feasibility.
- Smart Growth is not no-growth.
- Build working relationship with development community incentives to use new approaches, level of certainty.
- Be patient – learning curve.
- Special Permit process can be relied on to work.

Cluster Open Space Subdivision

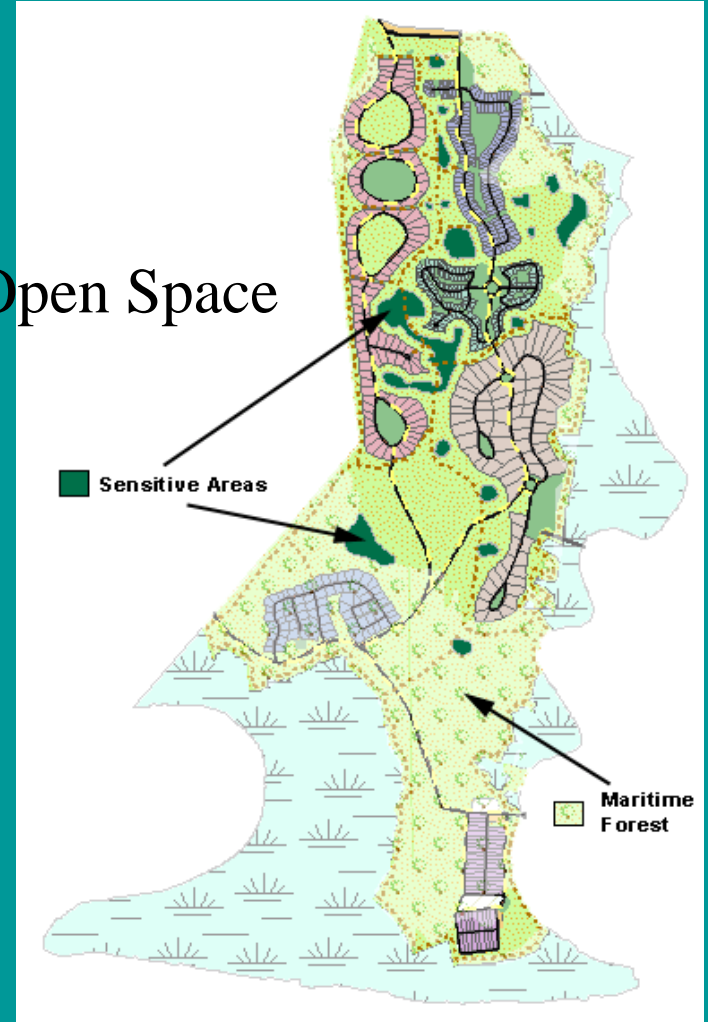
VOSD, RDD, RD

Open Space – Development Plans can look different

Conventional



Open Space



Open Space Cluster vs. Conventional Design Process

1. Draw the Lot Lines

2. Align Roads

3. Locate House Sites

Open Space ?

1. Establish yield (density)
By right

2. Set Aside Resource Areas;
Walks and Pre-application
Meetings with Planning Board

3. Locate House Sites

4. Align Roads & Trails

5. Draw the Lot Lines

An example.

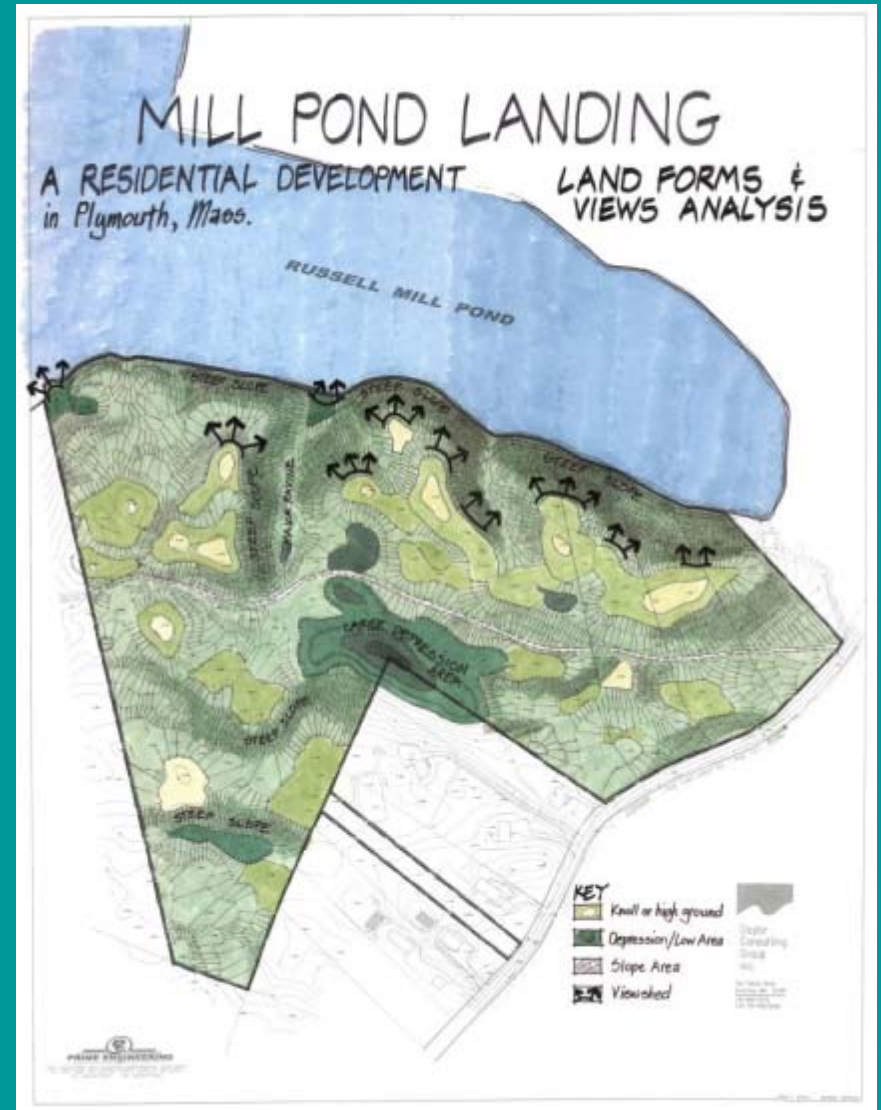
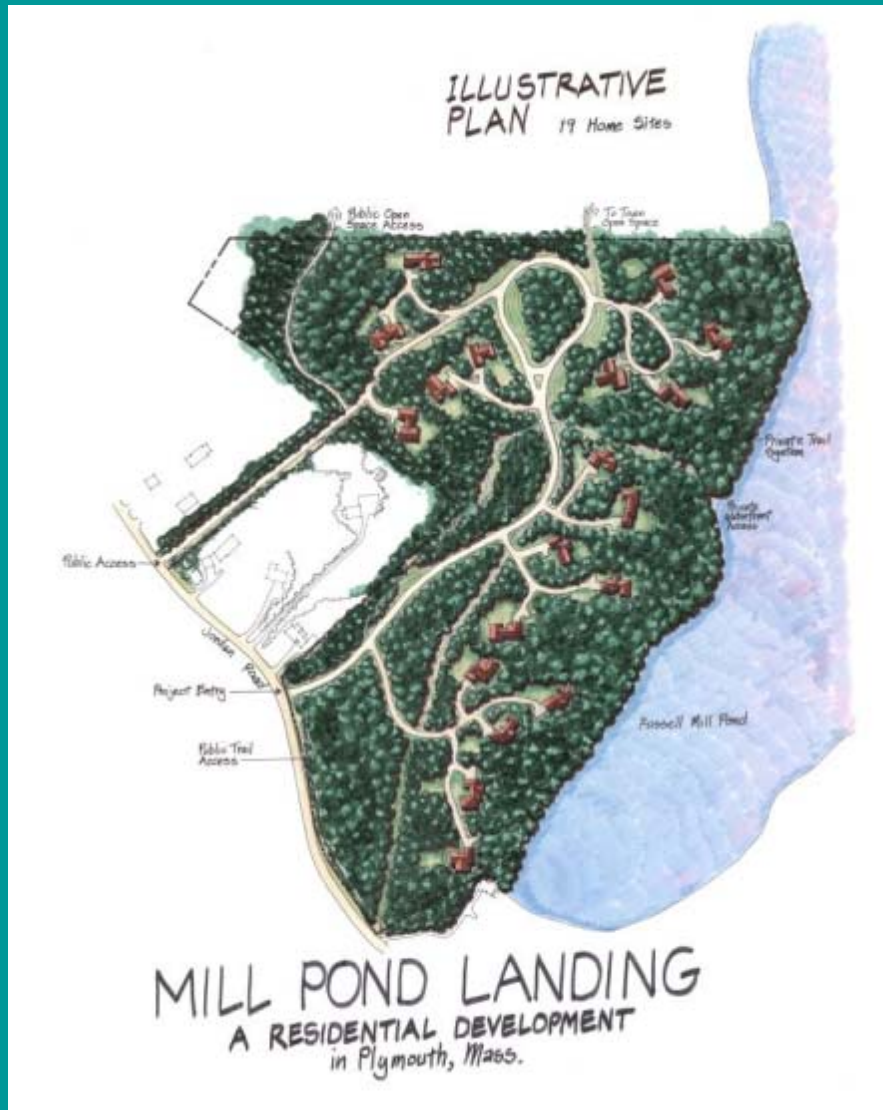
Mill Pond Landing

an RDD Subdivision
in Plymouth

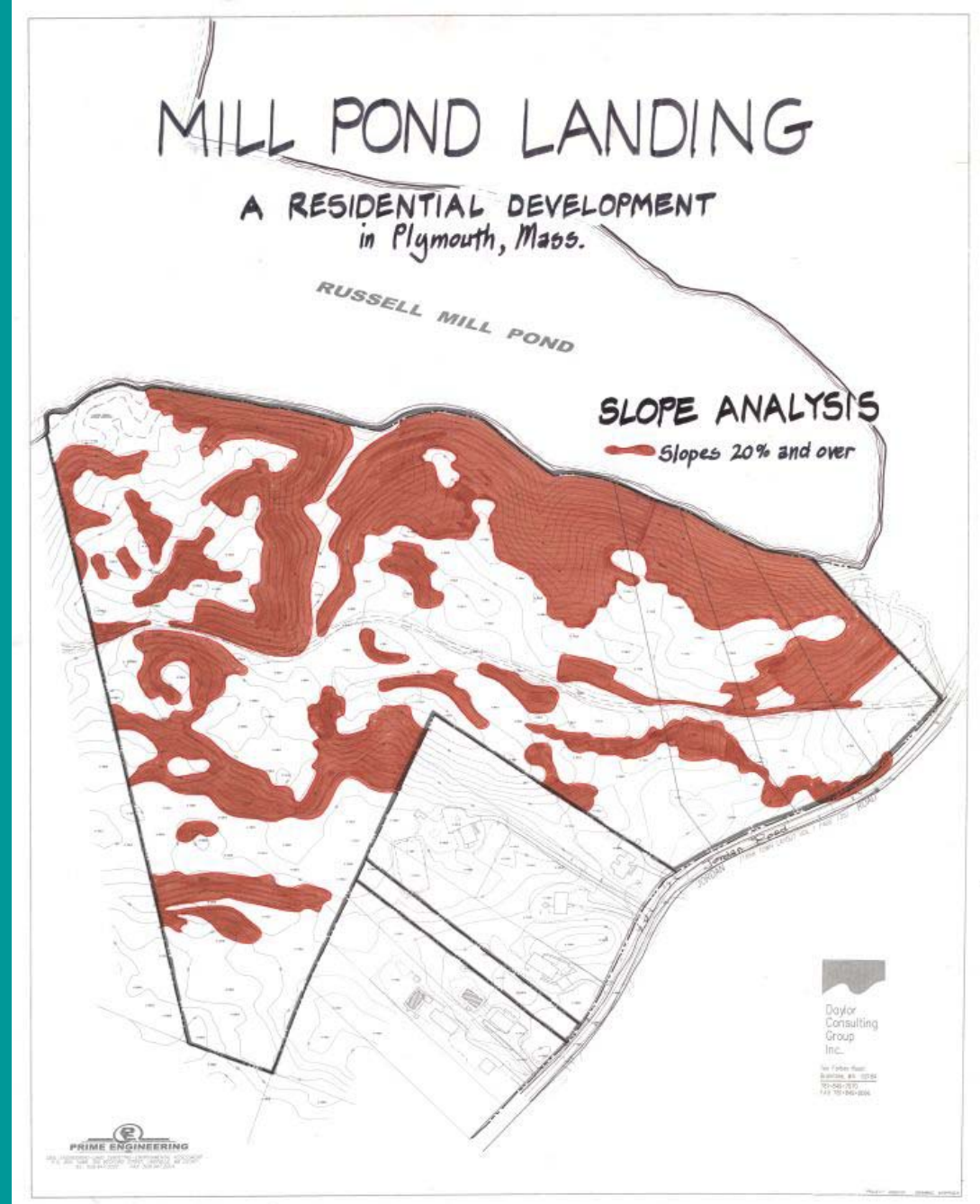
- 60-acre site; under construction
- 20 units with 27 acres of open space
- Open space donated to Town; links to other open space land

Built by Pierre M. Coll and
Michael P. Goodman

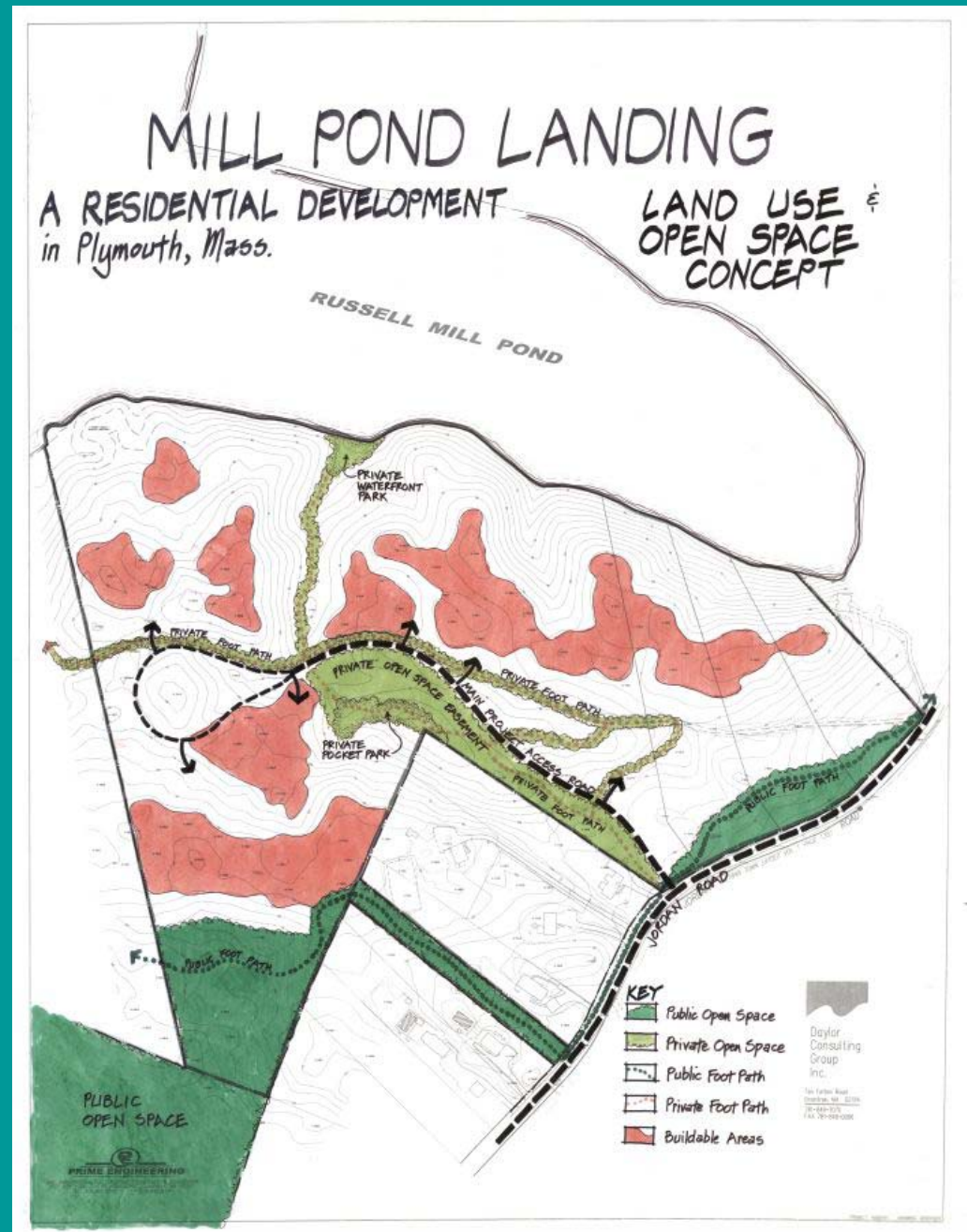
Open Space RDD Development



Show steep slopes



Add water, woodlands,
resource areas and conceptual
layout of open space



MILL POND LANDING
A RESIDENTIAL DEVELOPMENT
in Plymouth, Mass.

LAND FORMS & VIEWS ANALYSIS

RUSSELL MILL POND

KEY

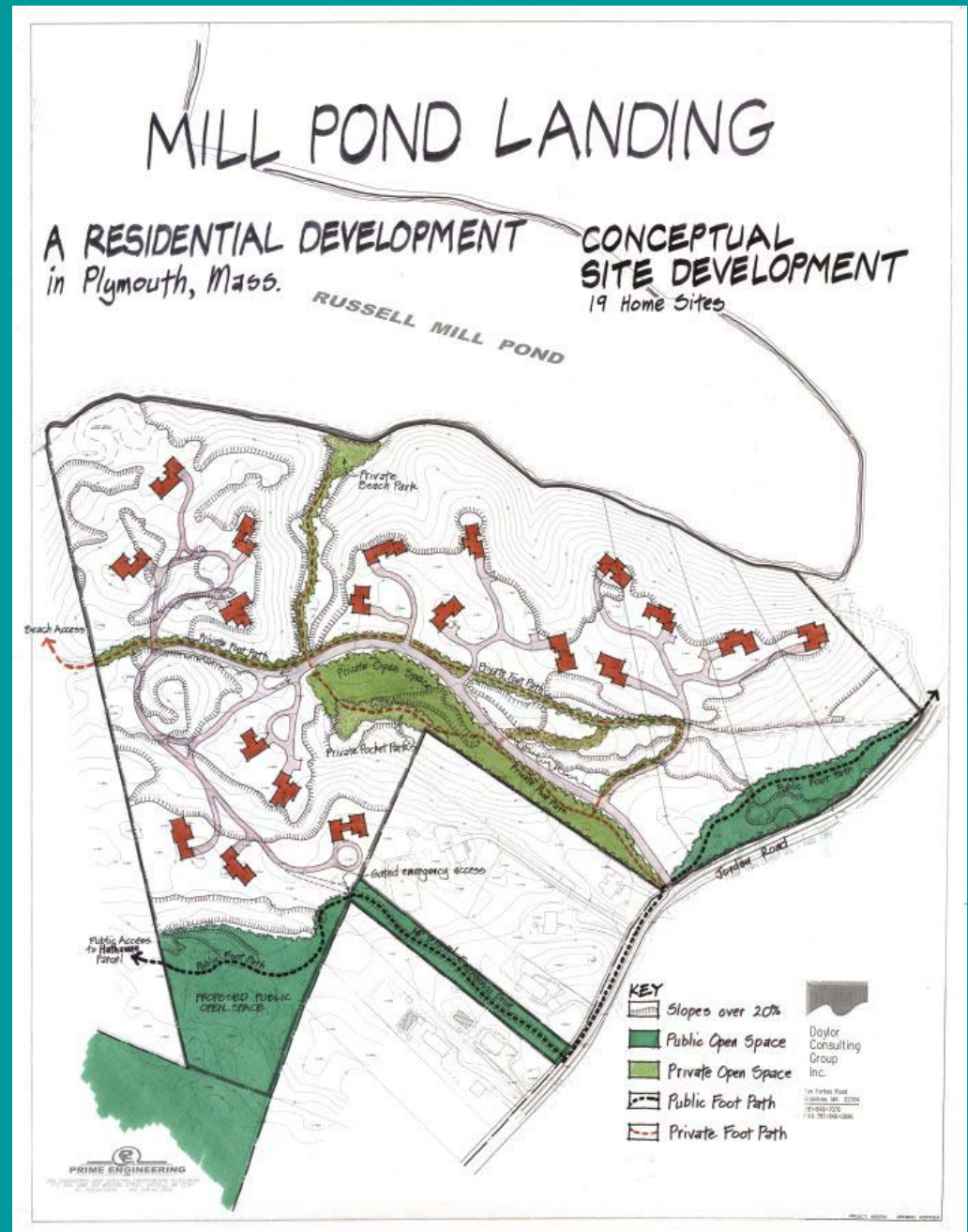
- Knoll or high ground
- Depression/Low Area
- Slope Area
- Viewshed

PRIME ENGINEERING

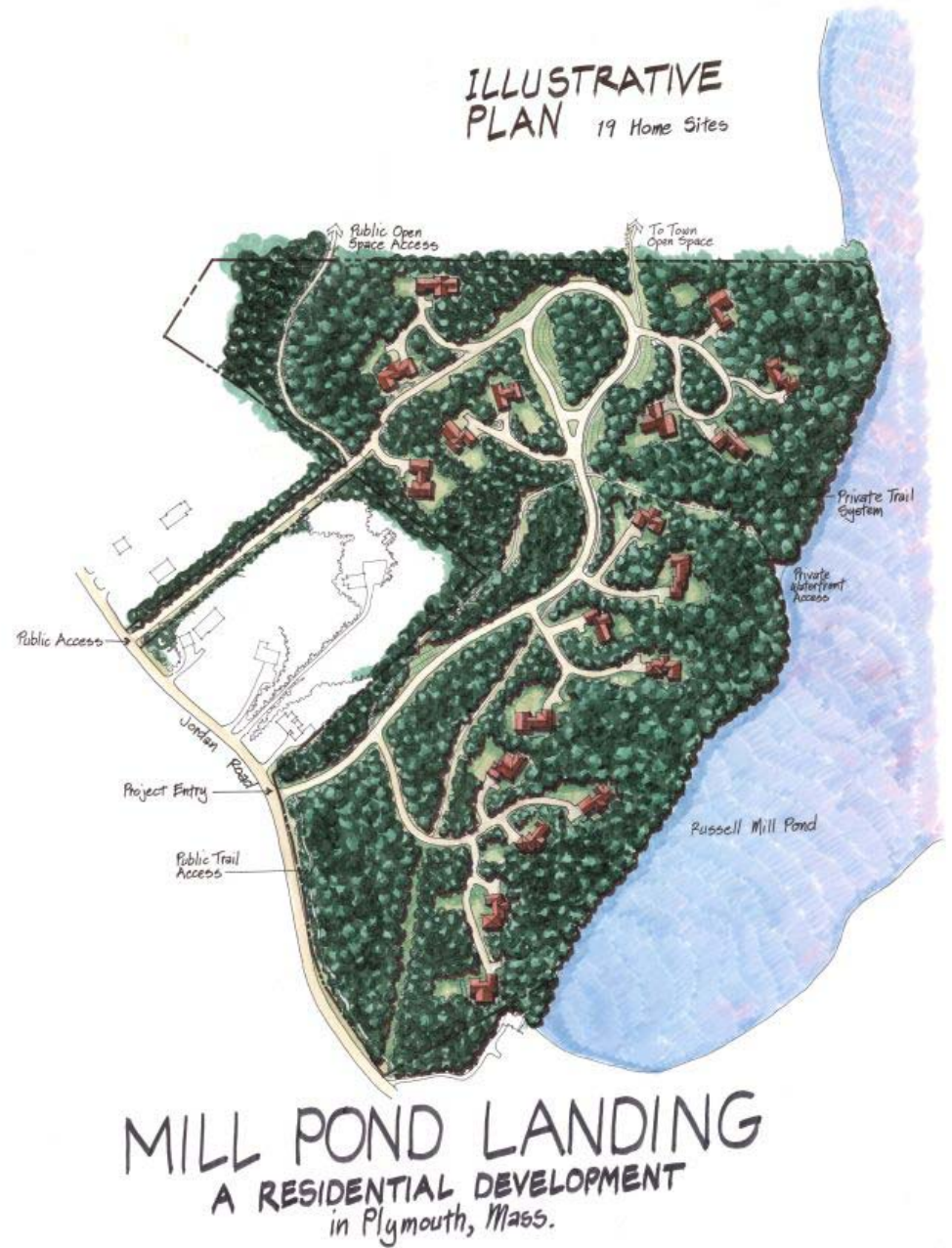
Daylor Consulting Group Inc.

For Further Detail
See Map 10000-0000
100-000-0000
100-000-0000

Last, show conceptual
lot configuration



Show overall
end product



Plymouth's RDD Bylaw

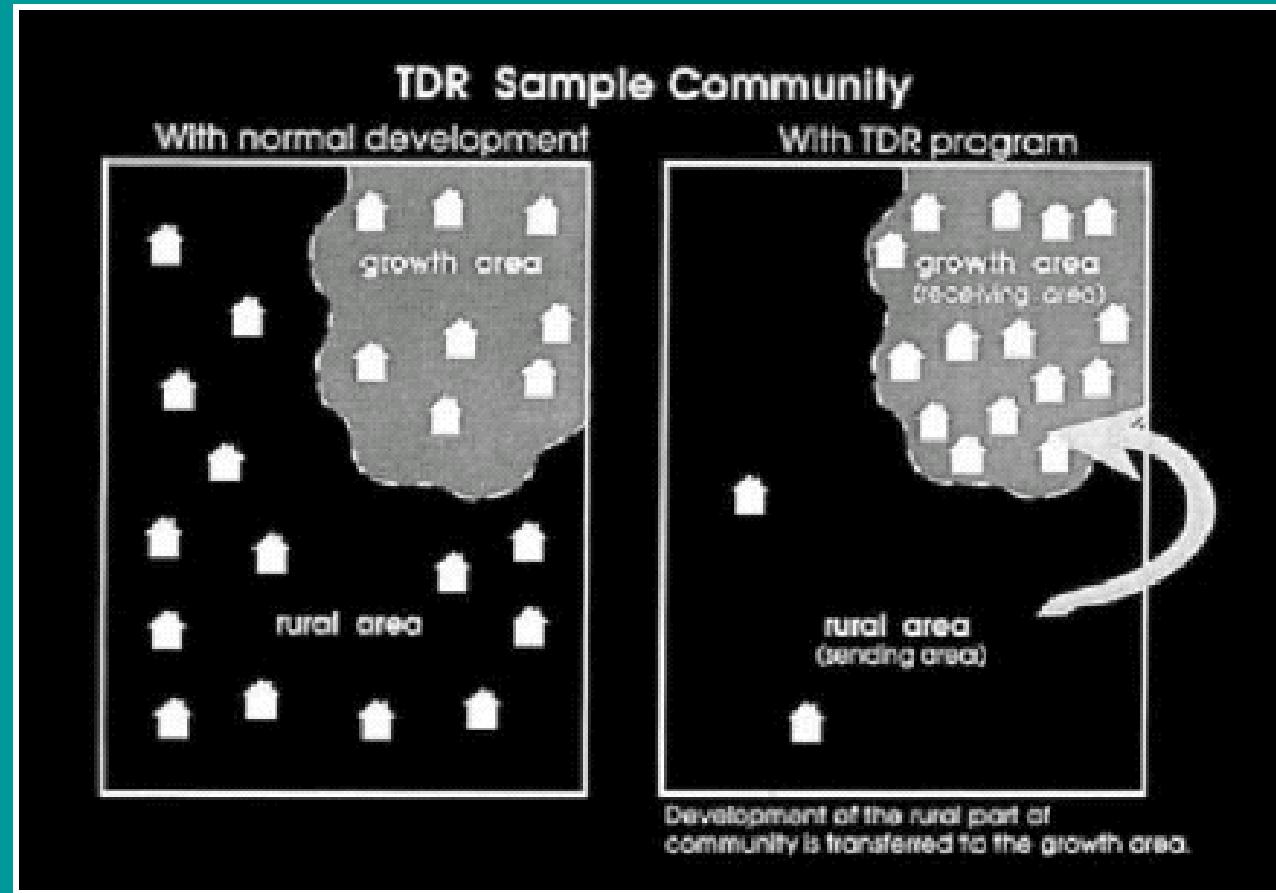
- 50-foot frontage for a lot.
- Can donate land to Town or land trust, or hold land privately in some circumstances for the benefit of the residents.
- 20,000 SF minimum lot size; typically 40,000 SF to fit individual septic and wells.

Plymouth's RDD Bylaw

- Concept Plan
- File concurrently for Definitive Plan and Special Permit
- Allows for Transfer of Development Rights (50%)
- 60,000 SF minimum open space per unit

Transfer of Development Rights

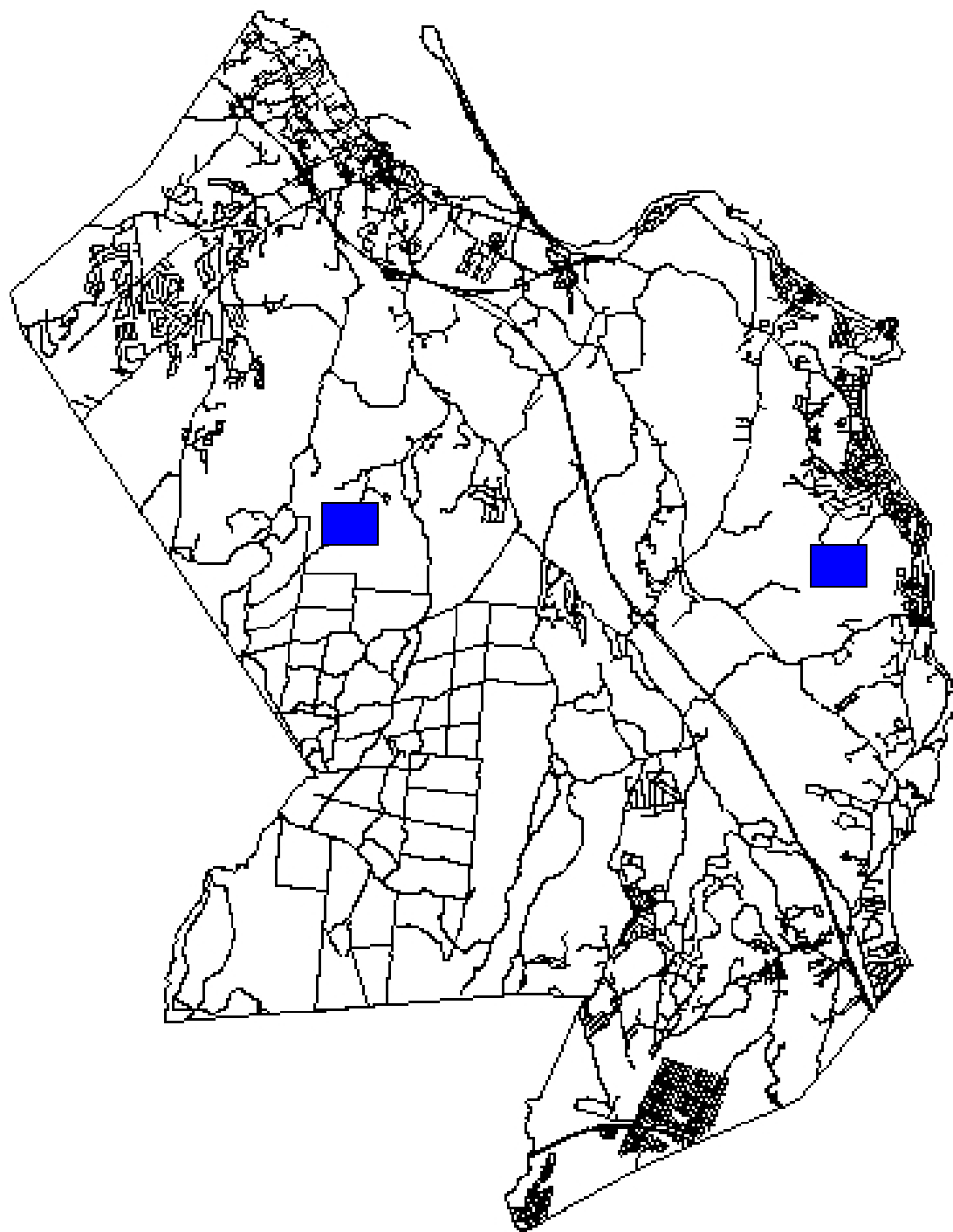
Development rights are sent from one parcel and received for additional units on another



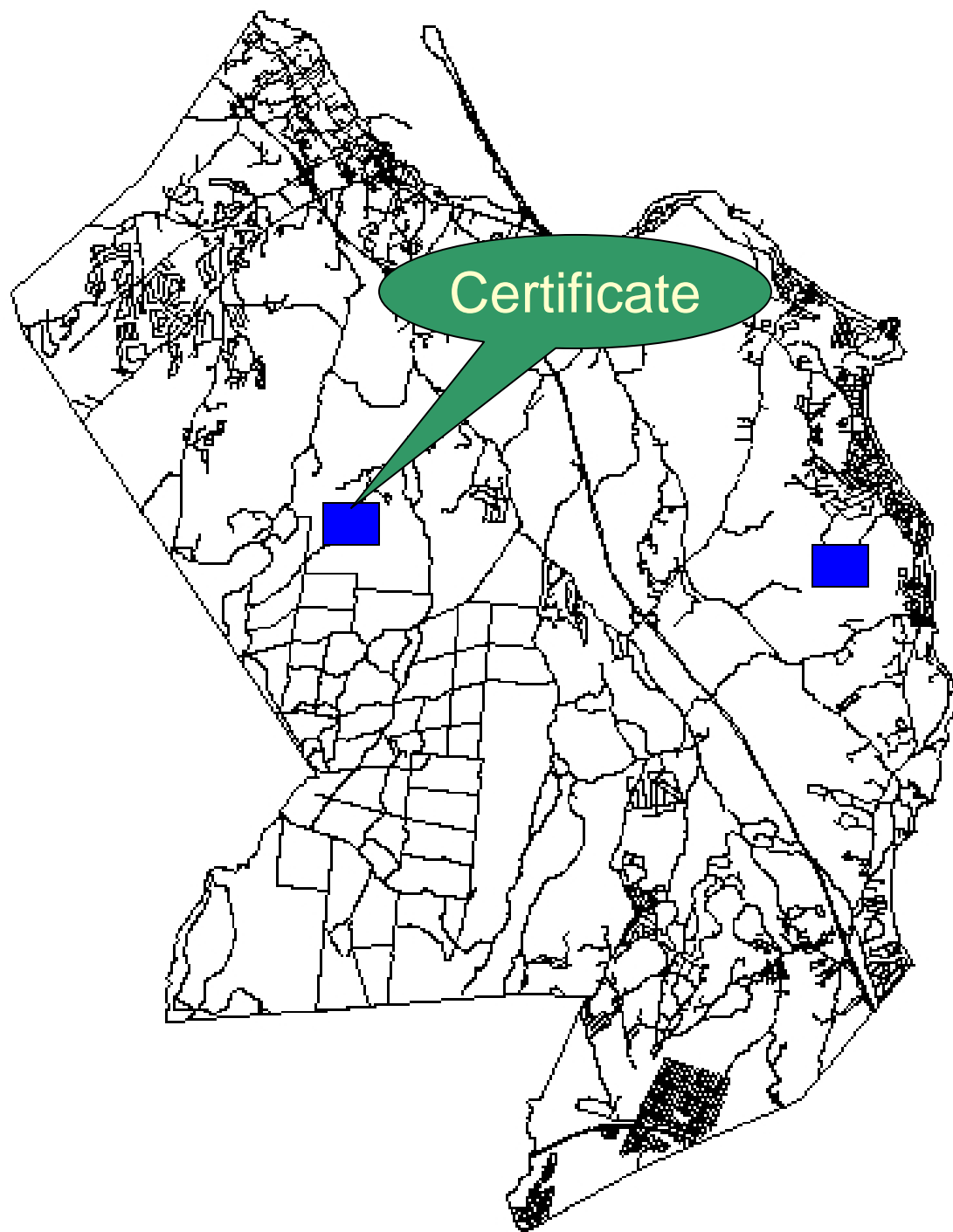
Transfer of Development Rights

- It is not possible for Plymouth to purchase and protect all remaining undeveloped land
- The potential for some level of development exists on most land in Plymouth
- TDRs permanently protect open space
- TDR is a voluntary program

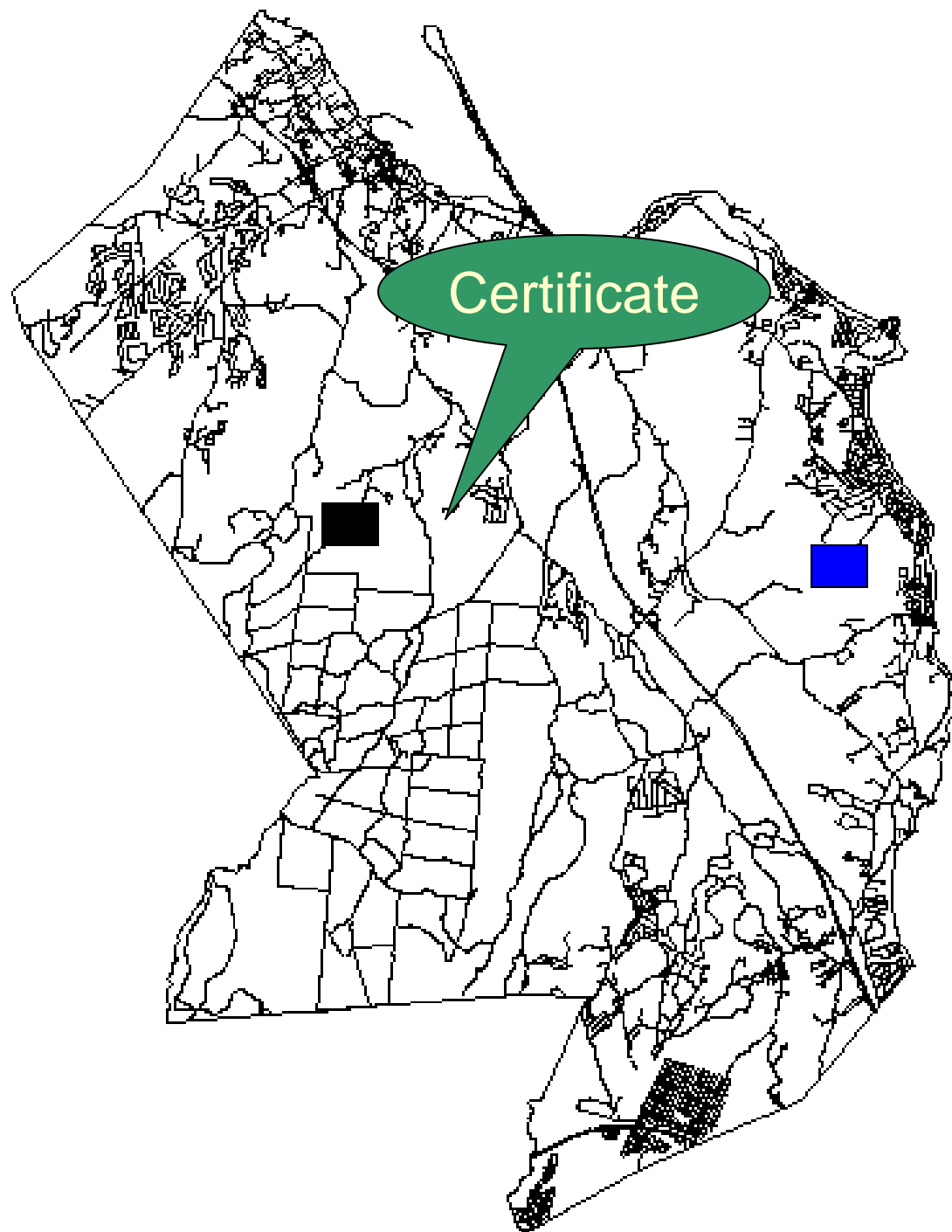
The Concept



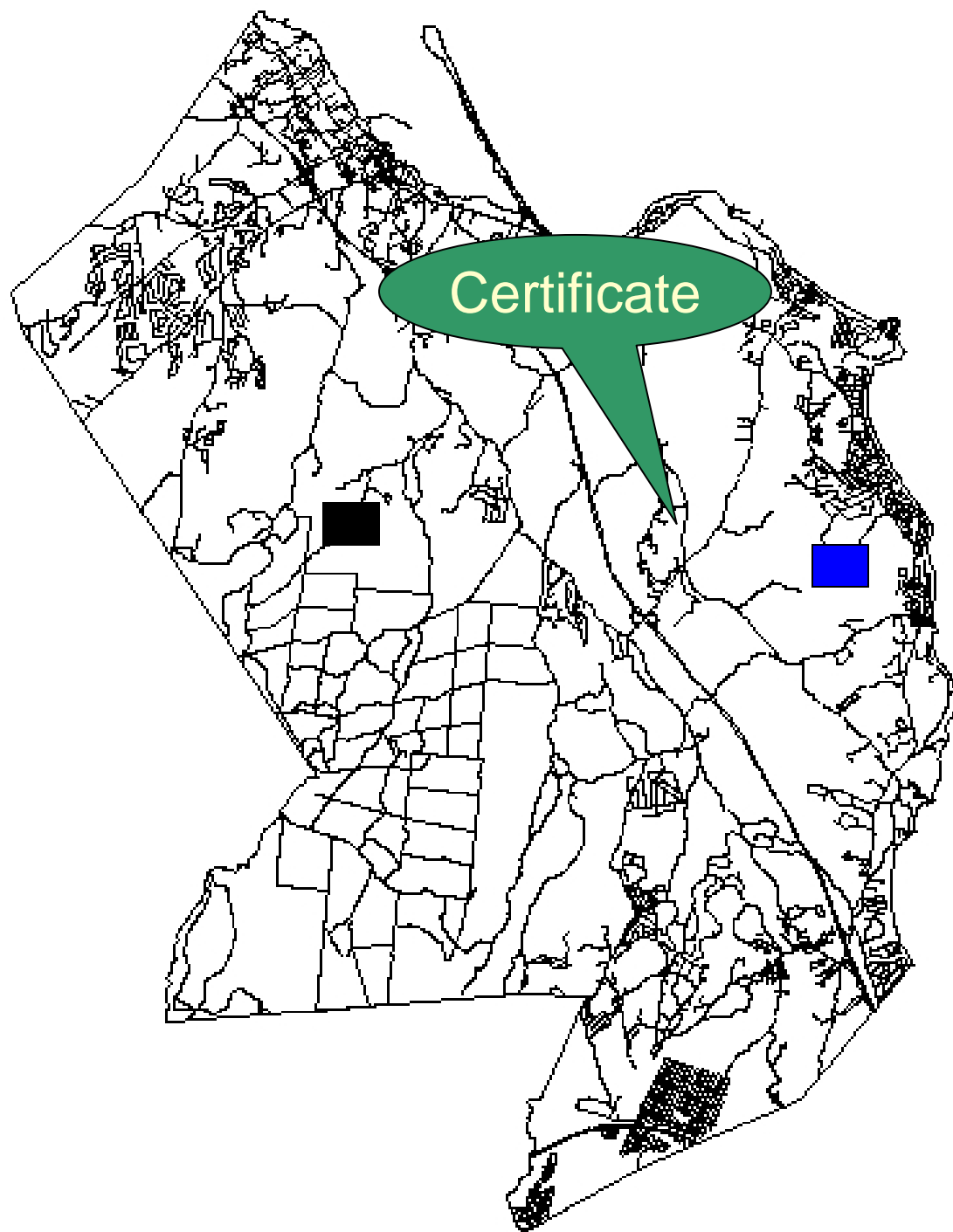
The Concept



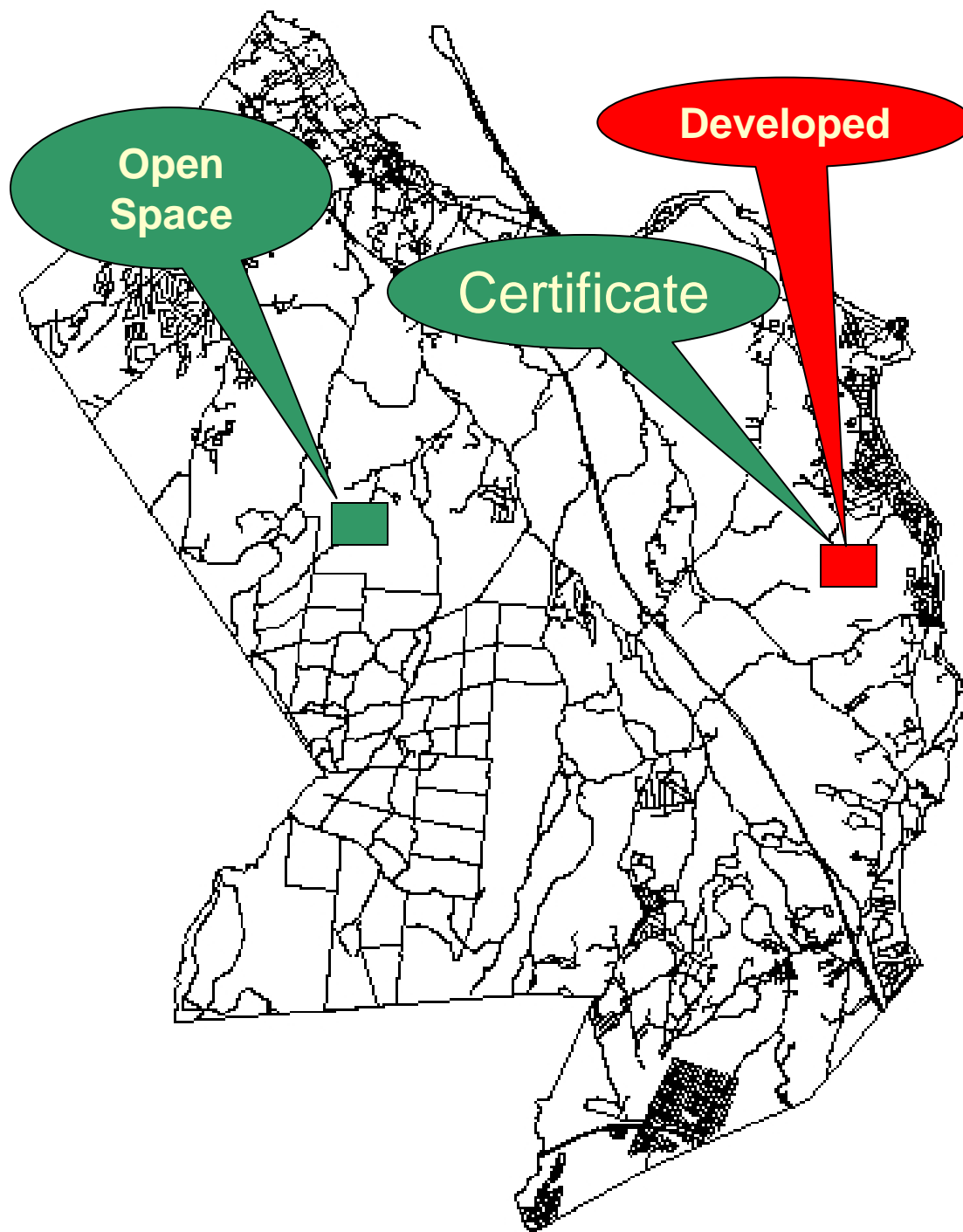
The Concept



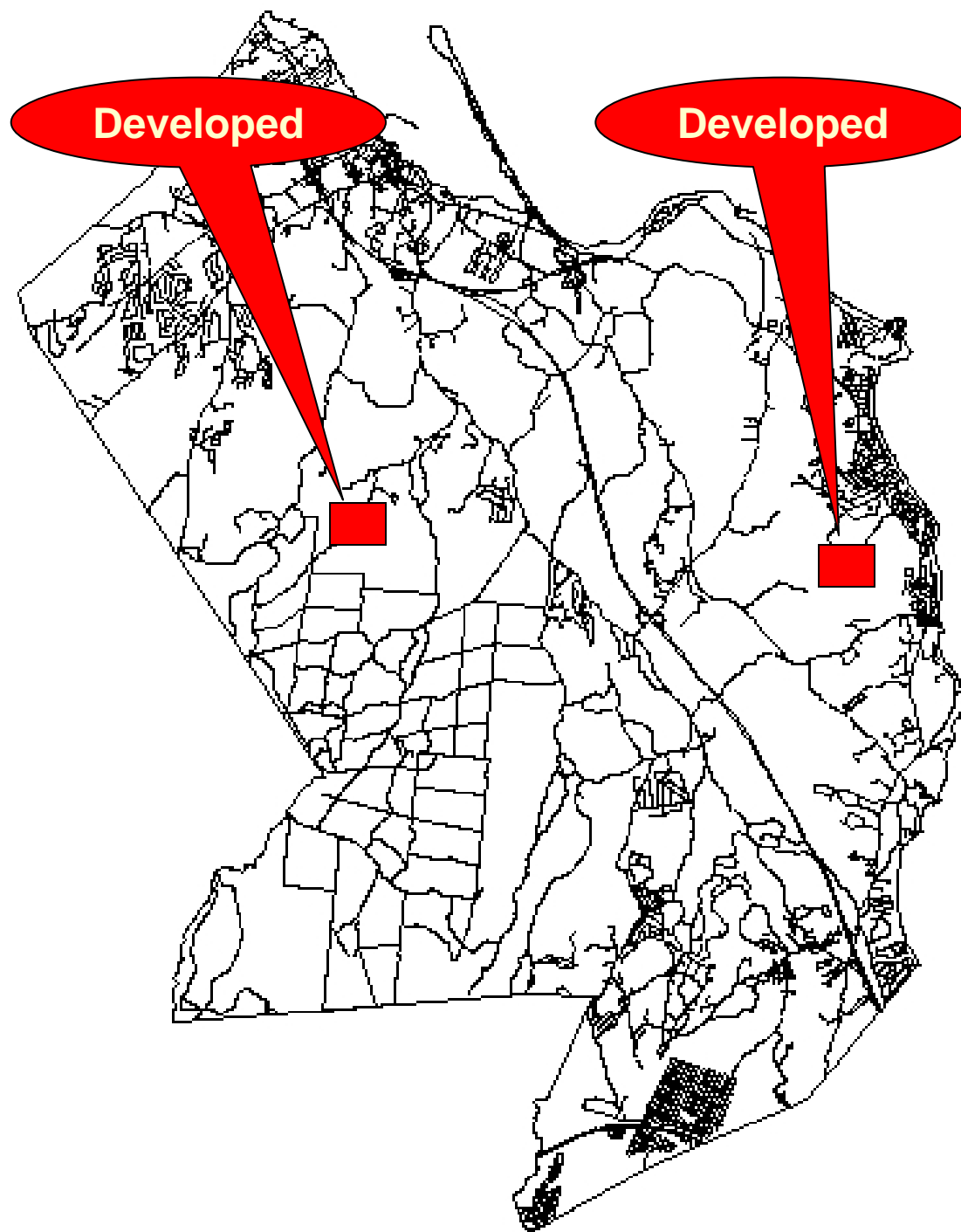
The Concept



The Concept



The
alternative



Transfer of Development Rights

The Trails

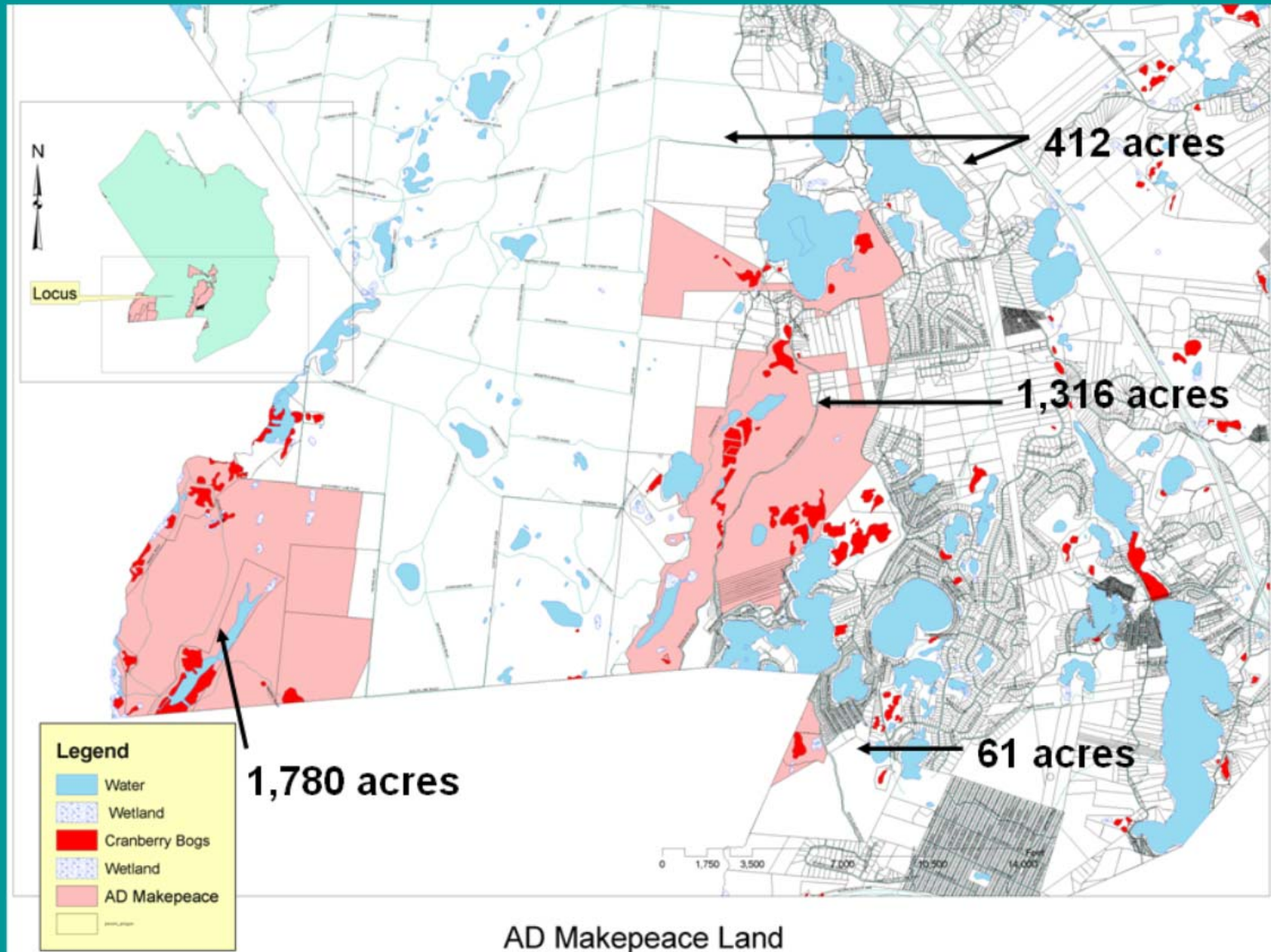
- 51 house lots
- 102 acres of open space
 - 45.6 acres horse farm
 - 56.4 acres on-site

Transfer of Development Rights

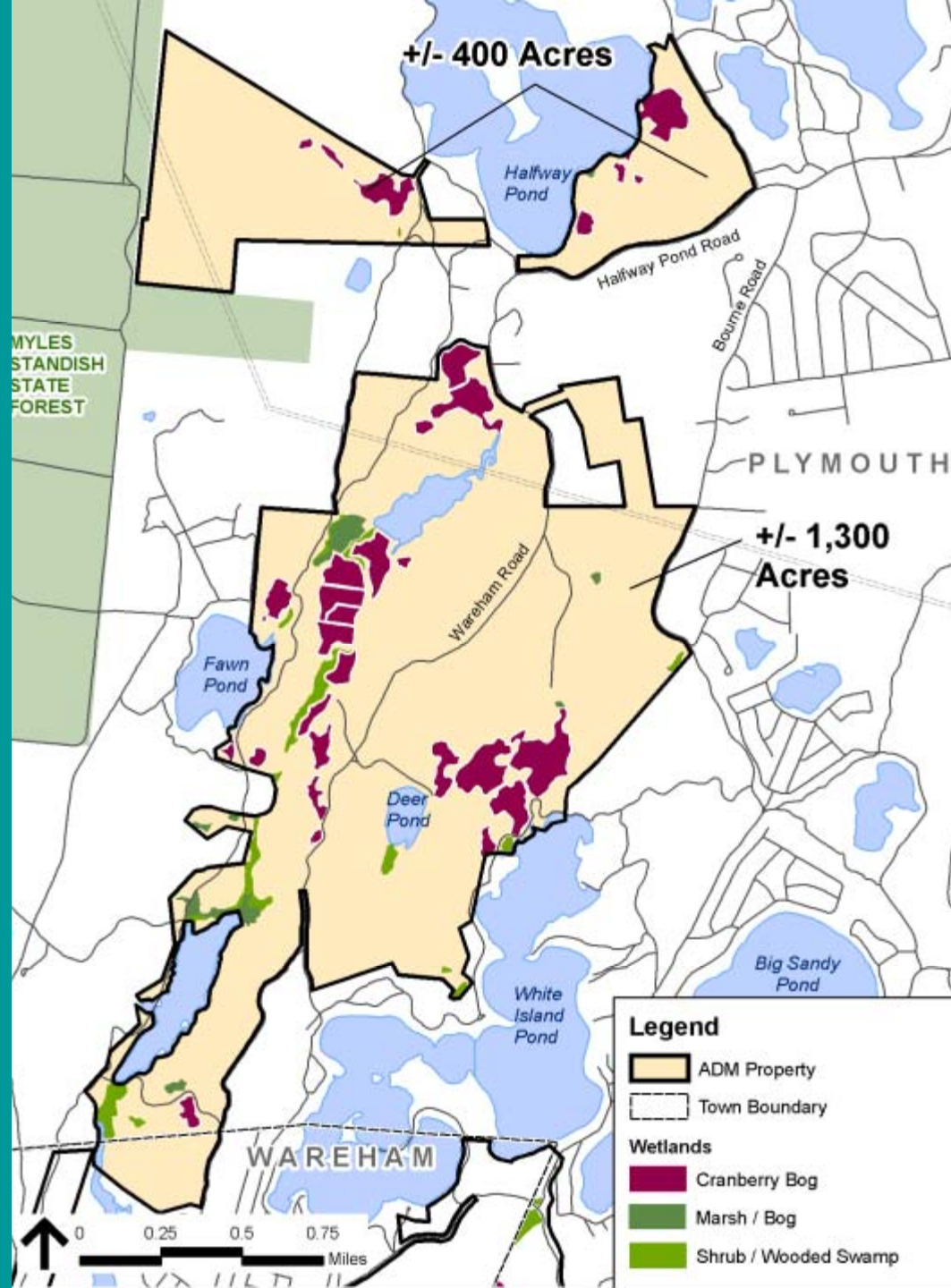
Clark Estates

- 96 house lots
- 20.6 acres of open space
 - 8.5 acres on-site
 - 12.1 acres off-site
- 7 additional lots
- 1 bonus lot deeded to the homeowners association

Back to Cranberries



A.D. Makepeace
Wareham Road



FOR REGISTRY USE ONLY

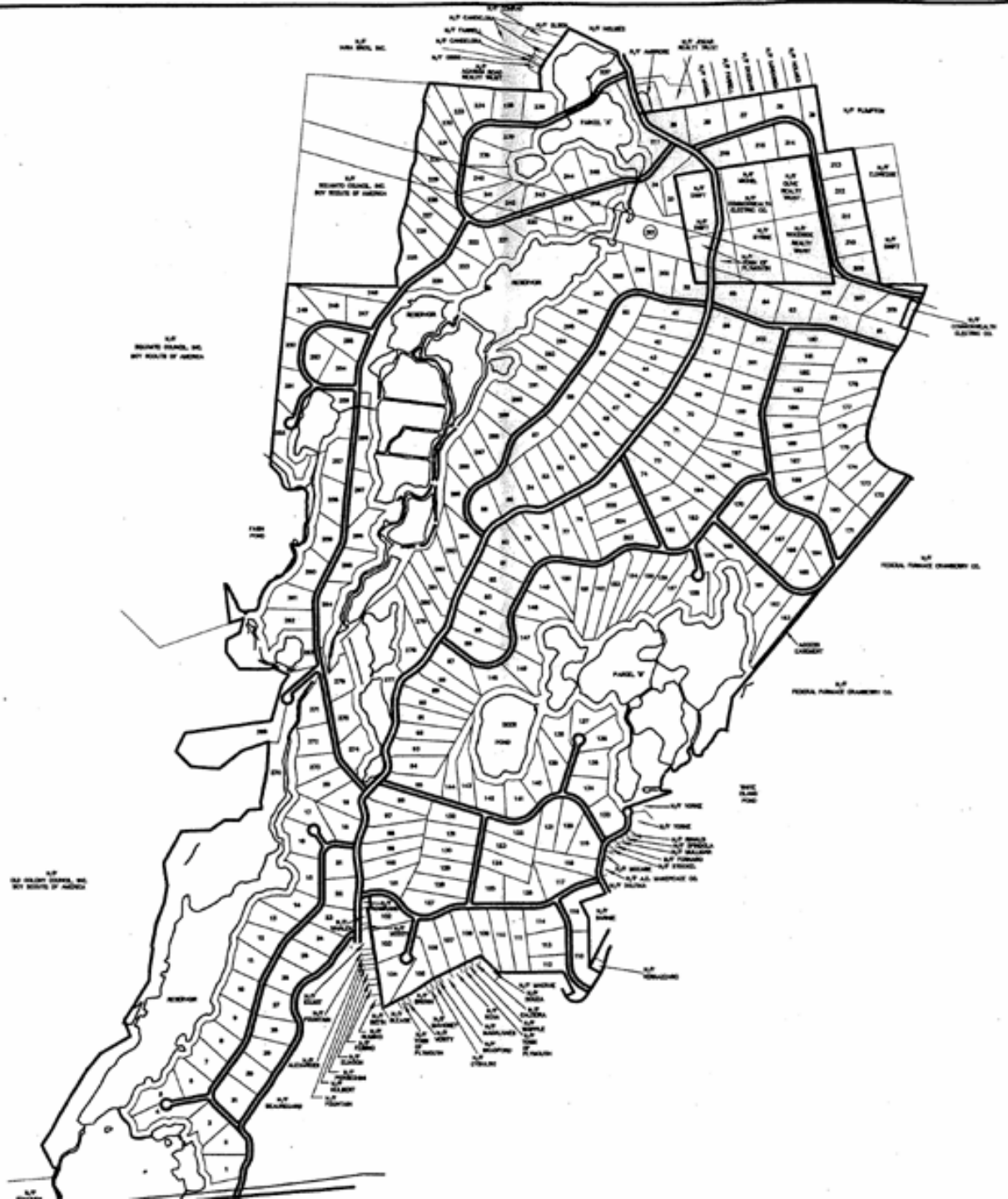
THAT THIS PLAN WAS PREPARED IN CONFORMANCE
RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.

A GRAYE, R.P.L.E. DATE _____

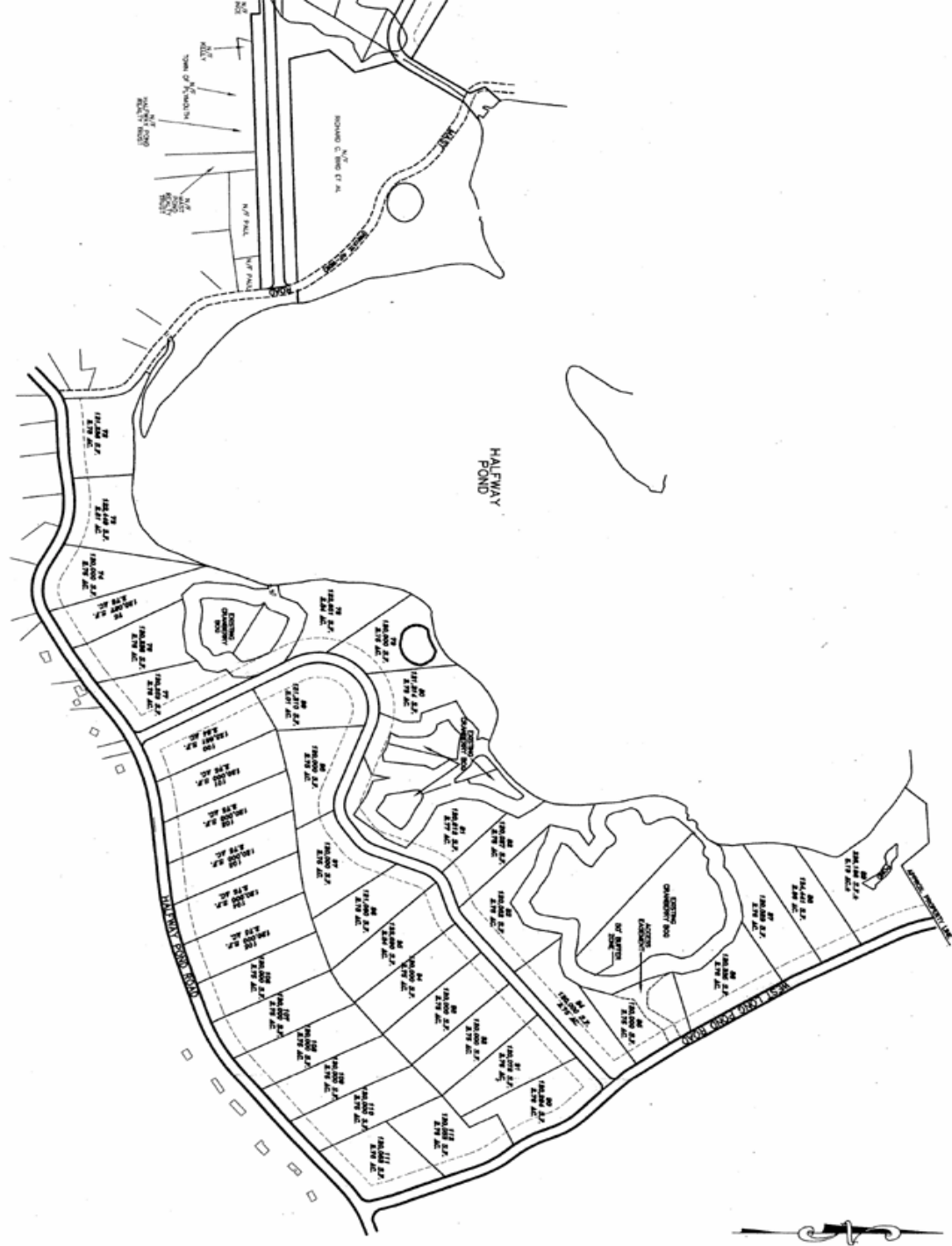
PROVISIONAL UNDER SUBDIVISION
ACTUAL LAW NOT REQUIRED

SHEET No.	LOT No.	CONTENTS
1	1 OF 8	LOTS 10-1 THROUGH 10-6, 4-1 THROUGH 4-3, 4A
2	2 OF 8	LOTS 4-2 THROUGH 4-6, 1-1 THROUGH 1-3, 1-4 THROUGH 1-6
3	3 OF 8	LOTS 8-1 THROUGH 8-3, 4-4A, 1-1A THROUGH 1-1B, 1-1C
4	4 OF 8	LOTS 4-7A THROUGH 4-7D, 4A, 1-1D THROUGH 1-1E, 1-1F
5	5 OF 8	LOTS 1-1F THROUGH 1-1H, 1-1I
6	6 OF 8	LOTS 4-2A THROUGH 4-2B, 4A, 1-2A THROUGH 1-2B, 1-2C
7	7 OF 8	LOTS 4-2C THROUGH 4-2D, 4A, 1-2D THROUGH 1-2E, 1-2F
8	8 OF 8	LOTS 4-2E THROUGH 4-2F, 4A, 1-2F THROUGH 1-2G, 1-2H

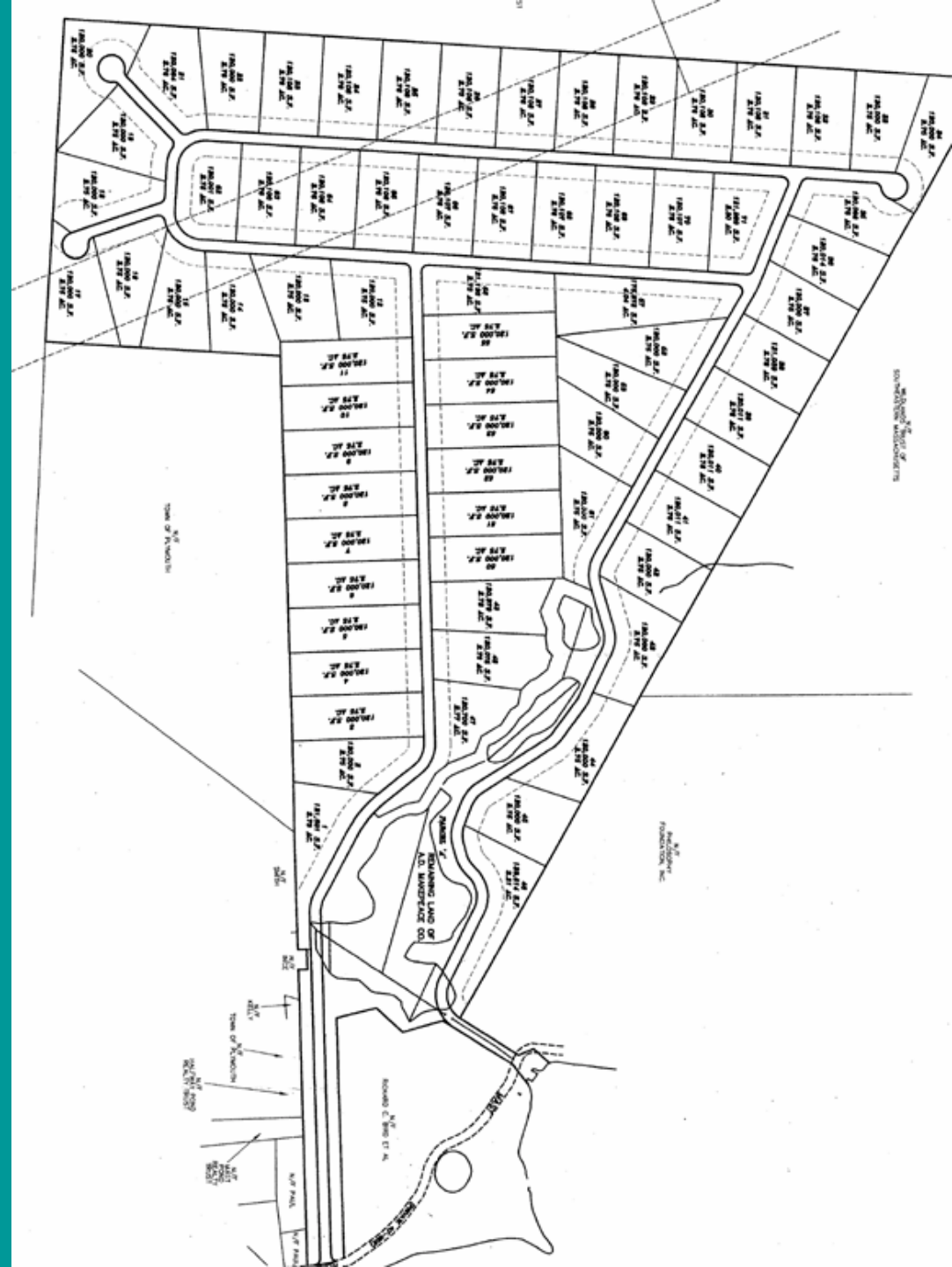
A.D. Makepeace
by Right
Wareham Road



A.D. Makepeace by
Right
Halfway Pond West



A.D. Makepeace by Right Halfway Pond West



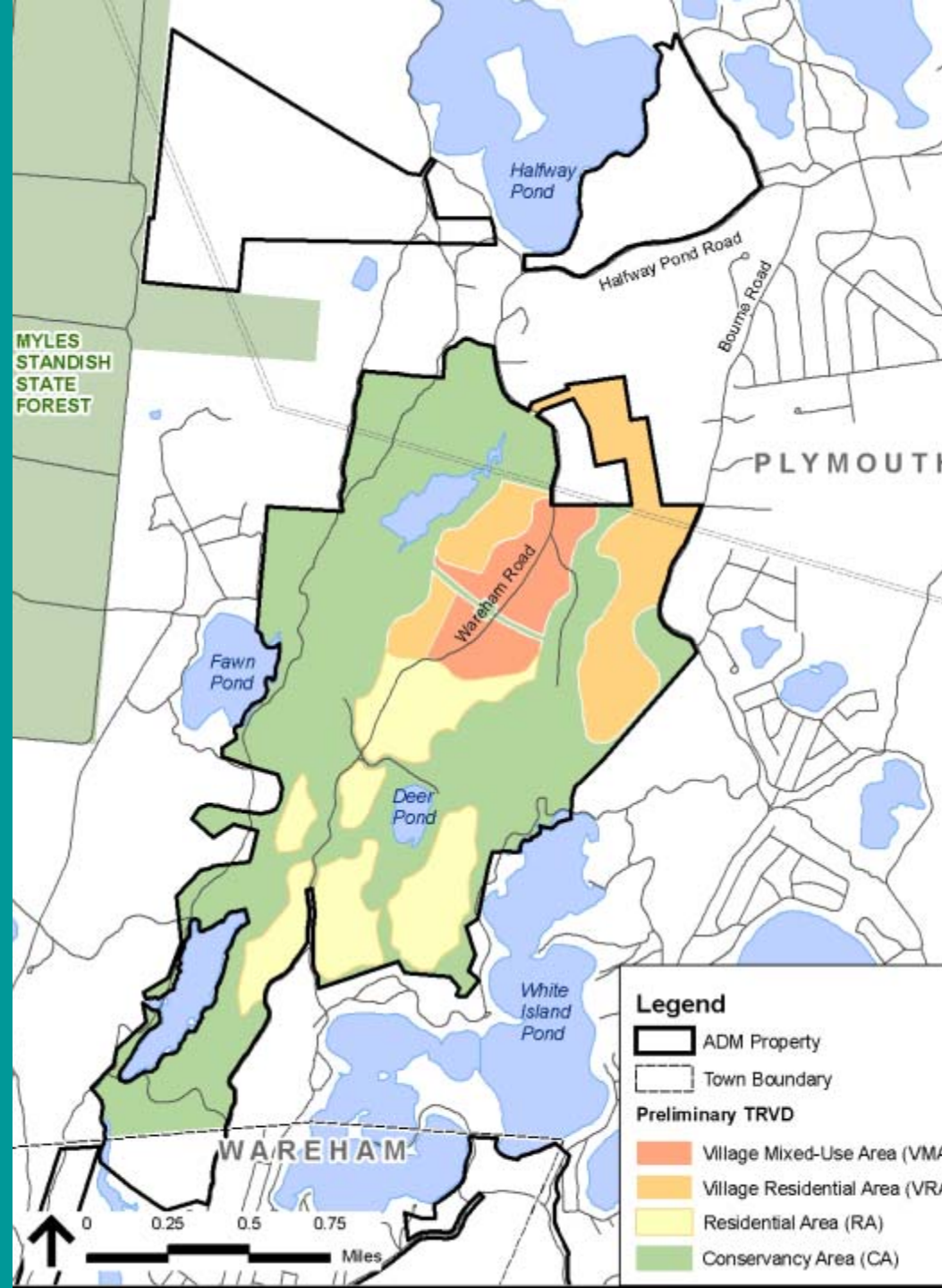
Traditional Rural Village Development

- Master plan process for entire development
- Allows 60,000 s.f. of commercial development
- Higher densities which create open space
- Developer responsible for infrastructure costs

A.D. Makepeace TRVD Concept Plan

Currently expect
2,000 acres set
aside, 400 acres
buildable

Infrastructure
issues will be
critical



Pinehills

Open Space Mixed Use Development

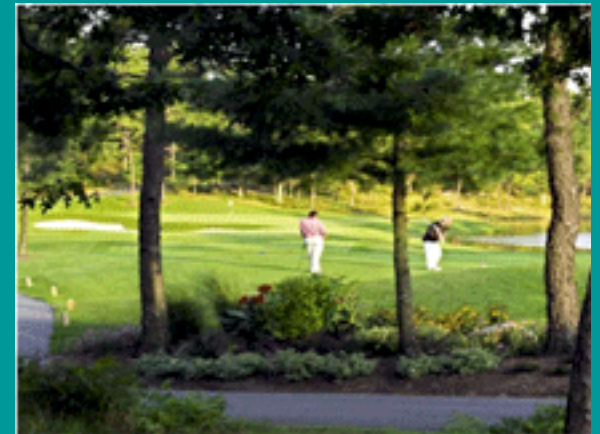
“OSMUD” Zoning

1999-2001

1999 Pinehills Development

- 3,000 acres
- 3,000 units
- Some age-restricted
- Winner of many smart growth awards nationwide
- New Town village
- mixed use overlay
- Private roads, water and WWTP
- 2,200 acres of open space (600 golf)

Best Master Planned Community
in the Nation 2003



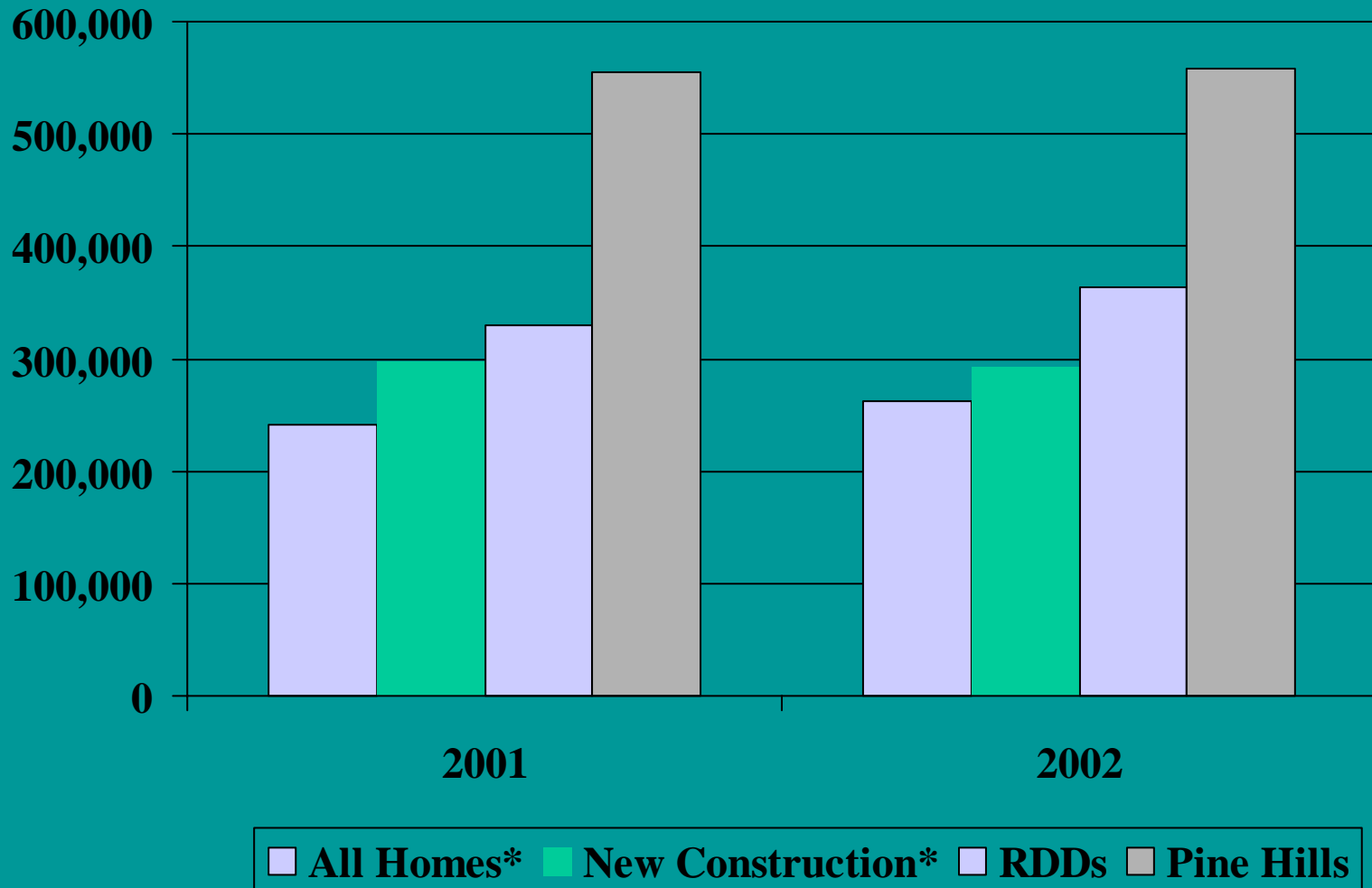
2006 Massachusetts Smart Growth Conference

OSMUD Changes

- New subdivision road design standards – build the roads that reflect the rural character
- New approach to design standards and master planning communities
- Able to carry these road design concepts over when granting waivers in implementing RDD, RD and VOSD subdivisions
- Narrower roads
- Slower design speeds
- Roads hug steeper slopes
- Tighter radius (still within Fire Chief means)
- Minimal frontage
- No curbing
- No hard drainage infrastructure required unless design circumstances demand it (LID)

Does it work?

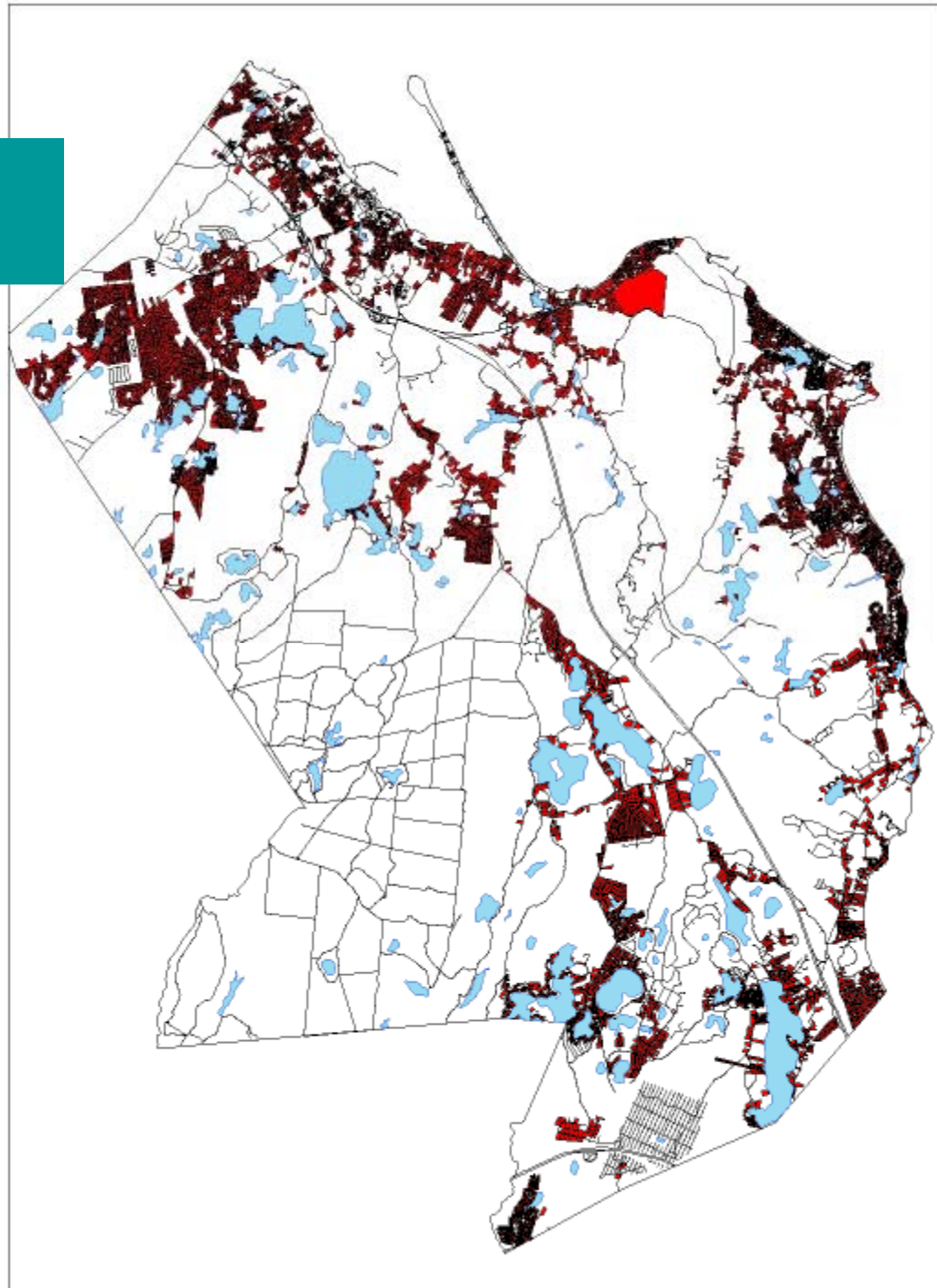
Property Sales Comparison



Source: Assessors Office * Excludes Pine Hills and RDD Sales

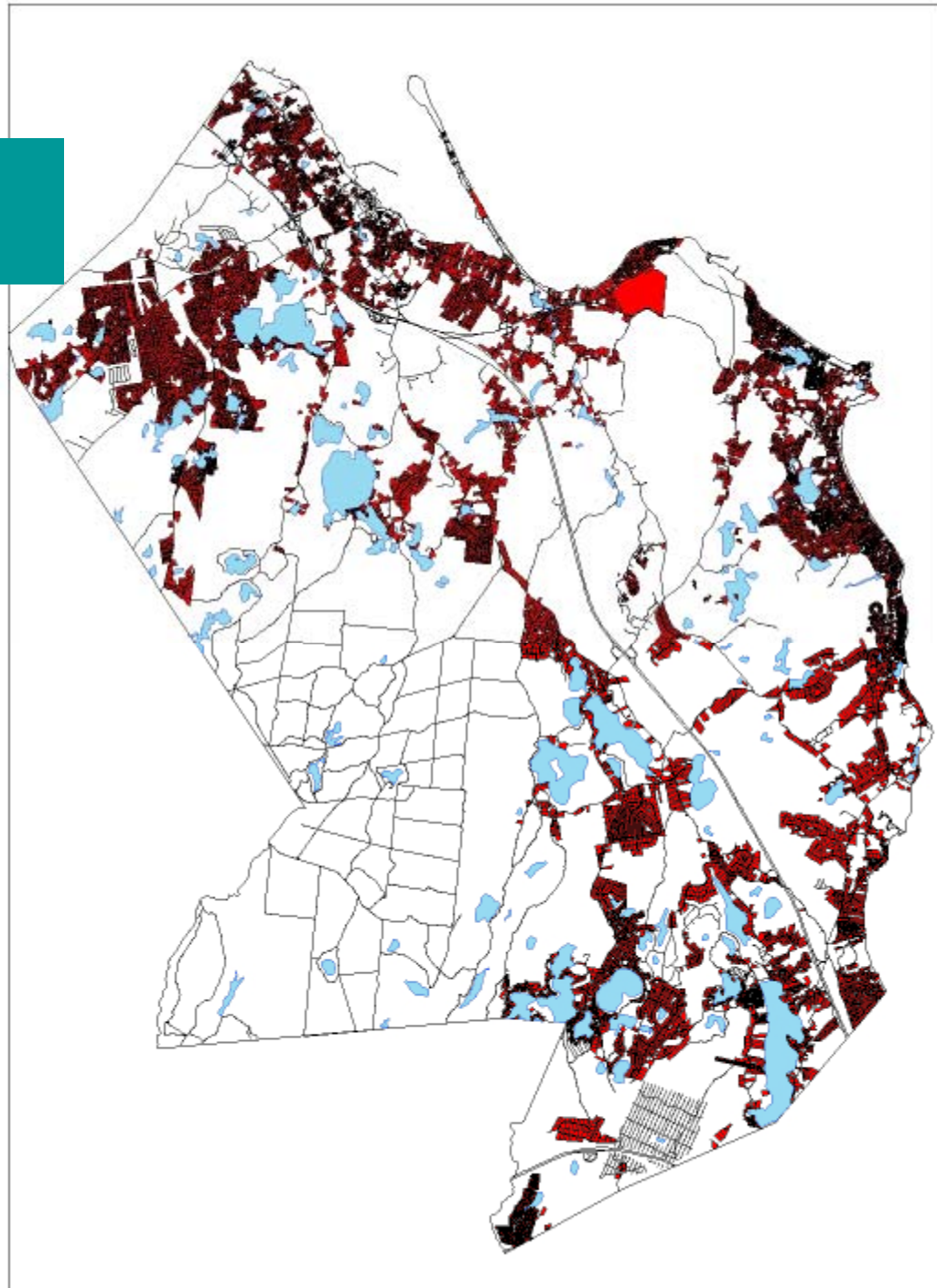
Residential Units

Before 1990



Residential Units

Present



Residential Development

Open Space Land Preserved via Creative Zoning

Rural Density Development (RDD)	457 acres
Recreational Development (RD)	34 acres
Open Space Mixed Use Development (OSMUD)	995 acres
Transfer of Development Rights	122.6 acres
Village Open Space Development (VOSD)	9.7 acres
Total	1,618.3 acres

Continued Planning

Assistance from EOEA Challenge
Grant

The road to sprawl

- Large-lot, low-density development consumes open space and costs more in town services.
- Since 1980...
 - Most new housing is single-family houses
 - Average lot size has almost doubled
- 1985-1999
 - More forest lost to residential development than all but four Massachusetts communities



Master Planning

Comprehensive Master Plan Update
Process 2002-2006

Staying on the road to sprawl

Since 1998...

- Residential parcels rise by 276 per year
- Vacant/open space parcels fall by 127 per year
- Housing growth and values outpace business growth and values: growing tax burden for home-owners

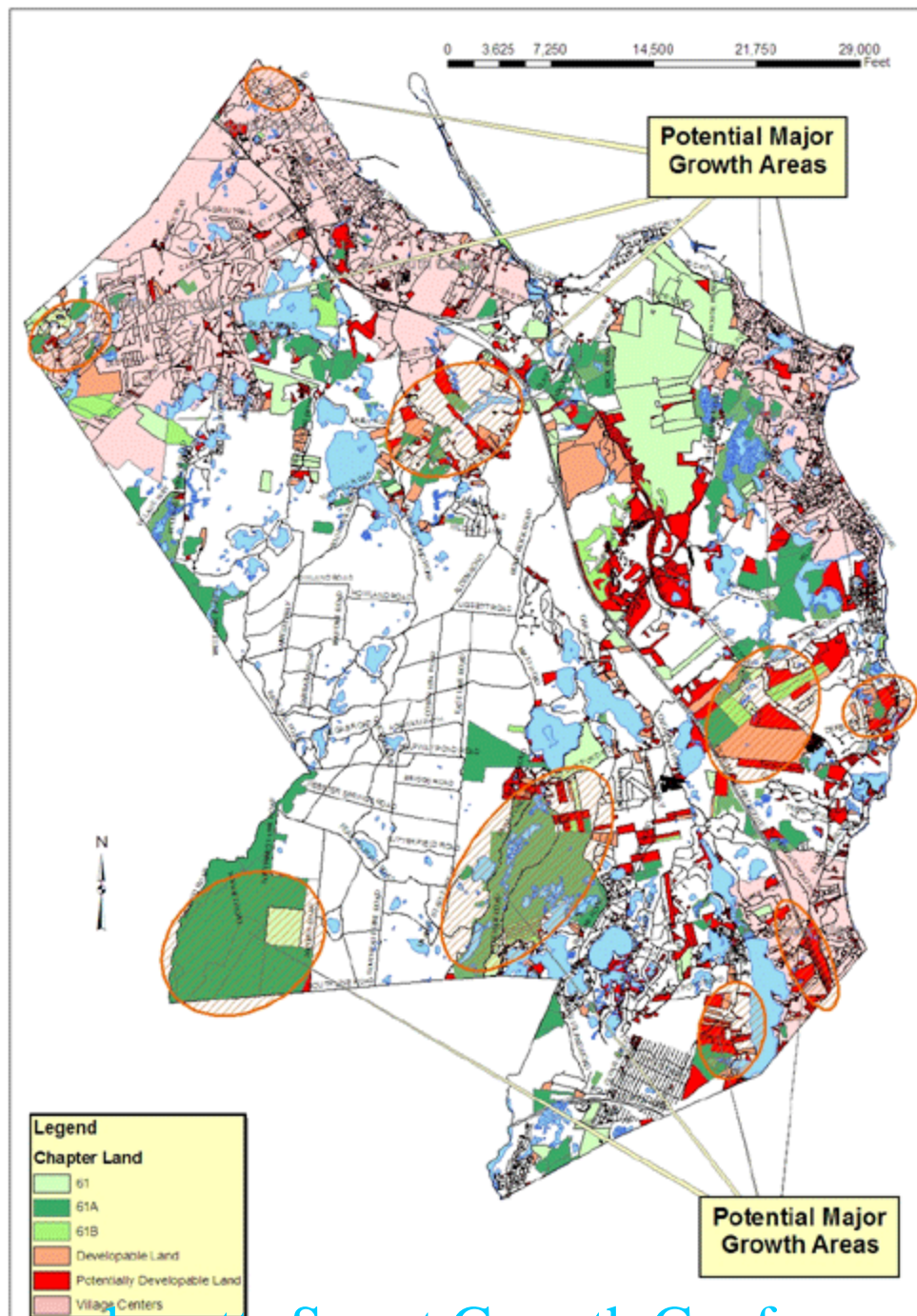
2000-2002

- Plymouth issues more single-family-house building permits than all Massachusetts communities but one.



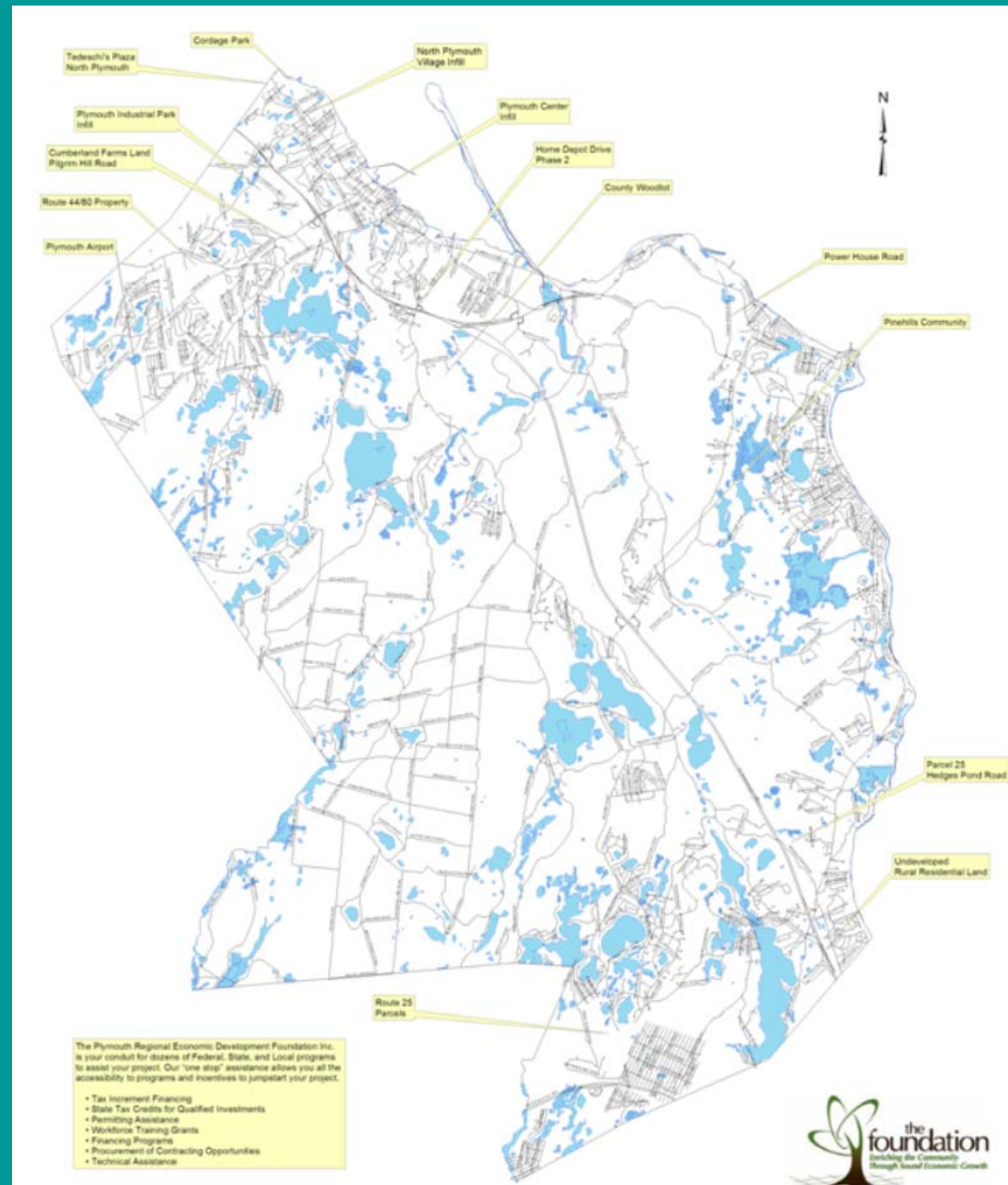
Future Growth

Residential



Future Growth

Commercial



Where is Plymouth headed?

According to state build-out estimates, development up to the maximum allowed by current zoning could mean:

- 30,000 more acres developed
- 20,000 more housing units and 50,000 more residents (to 105,000)
- Twice as many school children
- 200,000 more daily auto trips
- 245 miles of additional roads
- 7,200,000 gallons per day additional demand for drinking water—143% above current average daily demand

Smarter growth for Plymouth

•What would it be like?

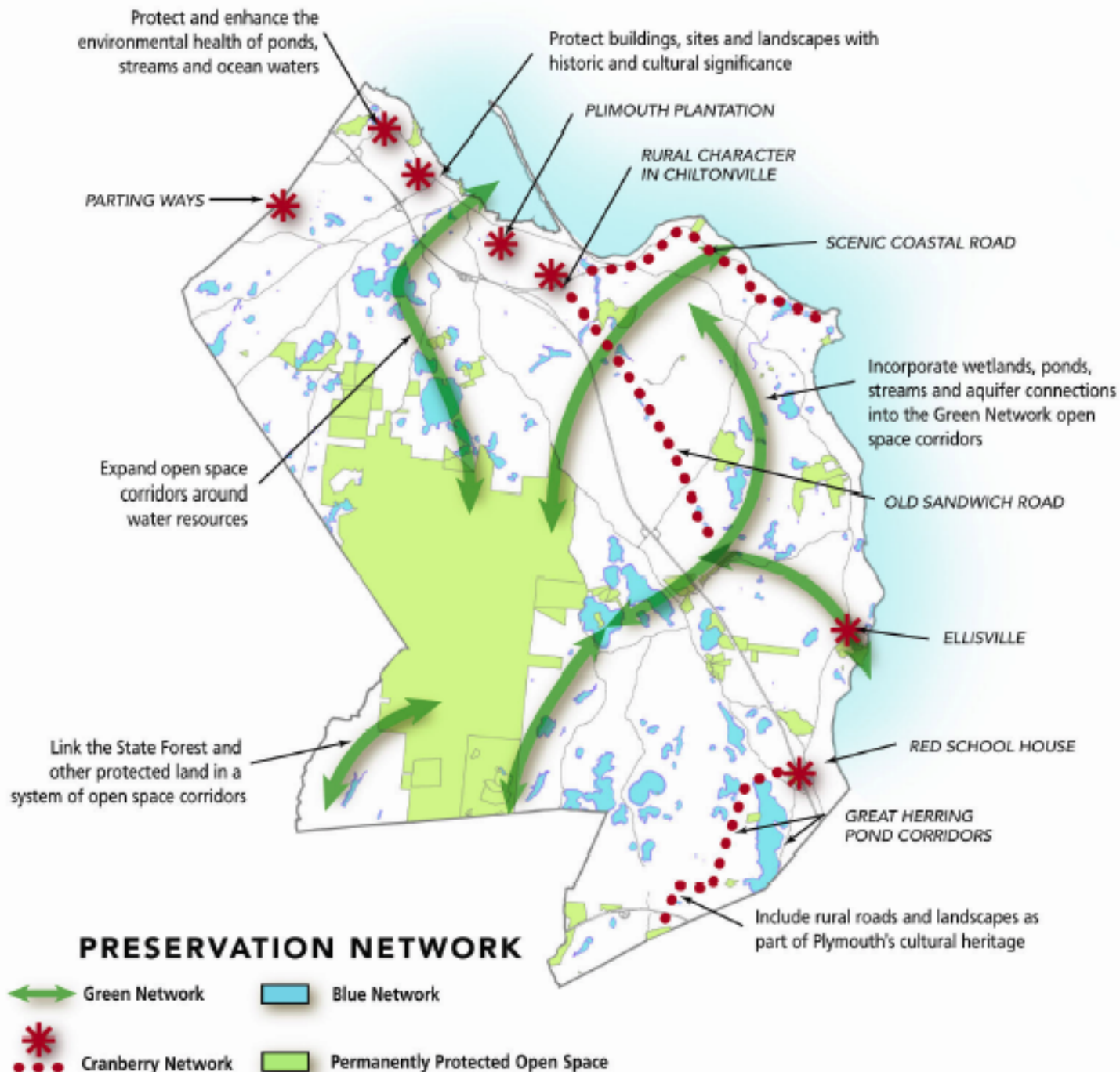
- A **Green Network** connecting protected natural resources and open space
- A **Blue Network** of high-quality waters in ponds, streams, groundwater and coastal waters
- A **Cranberry Network** preserving the heritage of historic and cultural sites and landscapes
- A **People Network** accommodating new housing and economic prosperity in compact neighborhoods, villages and new mixed-use centers



Smarter growth protects Green and Blue networks

- Linked network of critical natural resources, scenic landscapes, and water resources
- Protected biodiversity and rare ecosystems
- HOW?
 - ✓ Conservation restrictions
 - ✓ Environmentally-sensitive development standards
 - ✓ Land management to avoid nonpoint source pollution
 - ✓ Design and implementation of regulatory incentives





Smart growth balances preservation and growth in the People Network

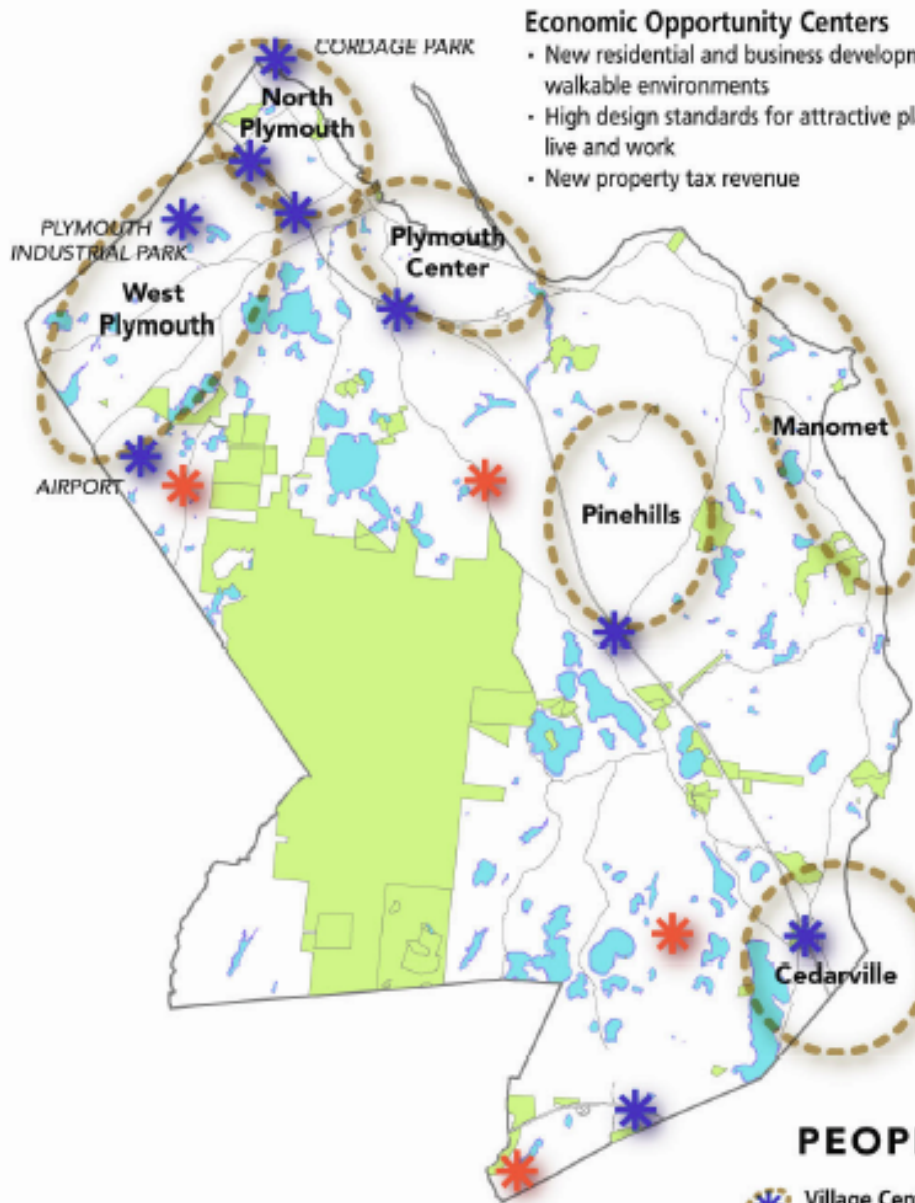
- Accommodate new housing and economic development while preserving quality of life and community character.
- HOW?
 - ✓ Direct new growth to village focus areas and away from rural areas.
 - TDR
 - restrictions on new infrastructure
 - ✓ Design/development guidelines so new growth is sensitive to the surrounding neighborhood.
 - ✓ Promote mixed-use development, such as housing above shops.



Smarter growth creates economic opportunity

- Areas for compact, mixed-use growth:
 - Cordage Commerce Center
 - Plymouth Industrial Park
 - Route 3/Route 44, exits 2, 3, 5, 6 and 7
 - Municipal Airport
- New development on brownfield sites like Revere Copper
- Revitalized and redeveloped older retail and service centers
- Rural service centers to serve rural areas





Economic Opportunity Centers

- New residential and business development in mixed-use, walkable environments
- High design standards for attractive places to live and work
- New property tax revenue

Village Centers

- Growth through infill, redevelopment, and compact development at Village edges
- High design standards and quality of life
- Mixed-use development
- Infrastructure (public or private)

Rural Service

Convenience Centers

- Convenience retail and services for rural residents

PEOPLE NETWORK



Village Centers



Economic Opportunity Centers

Rural Service Convenience Centers

Smarter growth strengthens infrastructure systems

- Focus infrastructure for compact development—more cost-effective and less impact on natural resources
- HOW?
- Create a transportation master plan:
 - Implement a traffic-calming program
 - Maintain rural roads and rural centers at current levels
 - Improve access to commuter rail
 - Town-wide network of bicycle/ pedestrian routes
- Comprehensive wastewater-management study for right sewer/septic balance
- Comprehensive water-supply study, including impacts on surface waters



Some Critical early actions

- Designate focus areas for preservation and growth.
- Establish infrastructure expansion limits.
- Provide for open space in opportunity areas and for rural service centers in preservation areas.
- Establish design and development standards for villages, preservation areas and economic opportunity areas.
- Develop comprehensive wastewater, water supply and transportation plans.

Ongoing Projects

- 2007 EOEAA Smart Growth Grant update Town's stormwater design guidelines, include LID and best management practices. Implement stormwater bylaw.
- 2006 EOEAA Smart Growth Grant analysis transferring development rights to village centers.
- Water infrastructure planning (DPW).
- Ongoing grants: retro-fit older stormwater infrastructure, dam removal, wetland restoration.
- 2006 EOEAA Smart Growth Grant 40R Overlay District at Cordage Park
- Town facilities master planning

Community Preservation Act (CPA)

- State law passed in 2000
- Plymouth authorized the CPA in 2002
- Provides funding for land acquisition, historic preservation, and affordable housing
- Qualified nonprofit organizations can hold CR's on properties acquired with CPA funds
- Nonprofit conservation organizations active in the area include The Wildlands Trust (WTSM), The Nature Conservancy (TNC), Mass. Audubon (MAS)
- Hundreds of acres preserved through CPC since adopted.

